OEM

USER MANUAL

KPM150H

Commands manual: **77200000000800**

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THE IMAGES USED IN THIS MANUAL ARE USED AS AN ILLUSTRATIVE EXAMPLES. THEY COULDN'T REPRODUCE THE DESCRIBED MODEL FAITHFULLY.

UNLESS OTHERWISE SPECIFIED, THE INFORMATION GIVEN IN THIS MANUAL ARE REFERRED TO ALL MODELS IN PRODUCTION AT THE ISSUE DATE OF THIS DOCUMENT.

GENERAL SAFETY INFORMATION

Your attention is drawn to the following actions that could compromise the characteristics of the product:

- Read and retain the instructions which follow.
- Follow all indications and instructions given on the device.
- Make sure that the surface on which the device rests is stable. If it is not, the device could fall, seriously damaging it.
- Make sure that the device rests on a hard (non-padded) surface and that there is sufficient ventilation.
- When positioning the device, make sure cables do not get damaged.
- Use the type of electrical power supply indicated on the device label. If uncertain, contact your dealer.
- Make sure the electrical system that supplies power to the device is equipped with a ground wire and is protected by a differential switch.
- Do not block the ventilation openings.
- Do not insert objects inside the device as this could cause short-circuiting or damage components that could jeopardize printer functioning.
- Do not carry out repairs on the device yourself, except for the normal maintenance operations given in the user manual.
- Make sure that there is an easily-accessible outlet with a capacity of no less than 10A closely to where the device is to be installed.
- Periodically perform scheduled maintenance on the device to avoid dirt build-up that could compromise the correct, safe operation of the unit.
- Before any type of work is done on the machine, disconnect the power supply.
- Do not touch the head heating line with bare hands or metal objects. Do not perform any operation inside the printer immediately after printing because the head and motor tend to become very hot.

GENERAL INSTRUCTIONS

CUSTOM ENGINEERING S.p.A. declines all responsibility for accidents or damage to persons or property occurring as a result of tampering, structural or functional modifications, unsuitable or incorrect installations, environments not in keeping with the equipment's protection degree or with the required temperature and humidity conditions, failure to carry out maintenance and periodical inspections and poor repair work.

CE THE CE MARK AFFIXED TO THE PRODUCT CERTIFY THAT THE PRODUCT SATISFIES THE BASIC SAFETY REQUIREMENTS.

The device is in conformity with the essential Electromagnetic Compatibility and Electric Safety requirements laid down in Directives 2006/95/CE and 2004/108/CE inasmuch as it was designed in conformity with the provisions laid down in the following Standards:

- EN 55022 Class B *(Limits and methods of measurements of radio disturbance characteristics of Information Technology Equipment)*
- EN 55024 *(Information Technology Equipment – Immunity characteristics – Limits and methods of measurement)*
- EN 60950-1 *(Safety of information equipment including electrical business equipment)*

GUIDELINES FOR THE DISPOSAL OF THE PRODUCT

The crossed-out rubbish bin logo means that used electrical and electronic products shall NOT be mixed with unsorted municipal waste. For more detailed information about recycling of this product, refer to the instructions of your country for the disposal of these products.

- Do not dispose of this equipment as miscellaneous solid municipal waste, but arrange to have it collected separately.
- The re-use or correct recycling of the electronic and electrical equipment (EEE) is important in order to protect the environment and the wellbeing of humans.
- In accordance with European Directive WEEE 2002/96/EC, special collection points are available to which to deliver waste electrical and electronic equipment and the equipment can also be handed over to a distributor at the moment of purchasing a new equivalent type.
- The public administration and producers of electrical and electronic equipment are involved in facilitating the processes of the re-use and recovery of waste electrical and electronic equipment through the organisation of collection activities and the use of appropriate planning arrangements.
- Unauthorised disposal of waste electrical and electronic equipment is punishable by law with the appropriate penalties.

The format used for this manual improves use of natural resources reducing the quantity of necessary paper to print this copy.

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1 INTRODUCTION

1.1 Document structure

This document includes the following chapters:

1	INTRODUCTION	information about this document
2	DESCRIPTION	general description of device
3	INSTALLATION	information required for a correct installation of the device
4	OPERATION	information required to make the device operative
5	CONFIGURATION	description of the configuration parameters of the device
6	MAINTENANCE	information for a correct periodic maintenance
7	SPECIFICATION	technical specification for the device and its accessories
8	CONSUMABLES	description and installation of the available consumables for the device
9	ACCESSORIES	description and installation of the available accessories for the device
10	ALIGNMENT	information required for managing the paper alignment
11	TECHNICAL SERVICE	information required for contacting the technical service
12	ADVANCED FUNCTIONS	information about special functions available with the device

1.2 Explanatory notes used in this manual

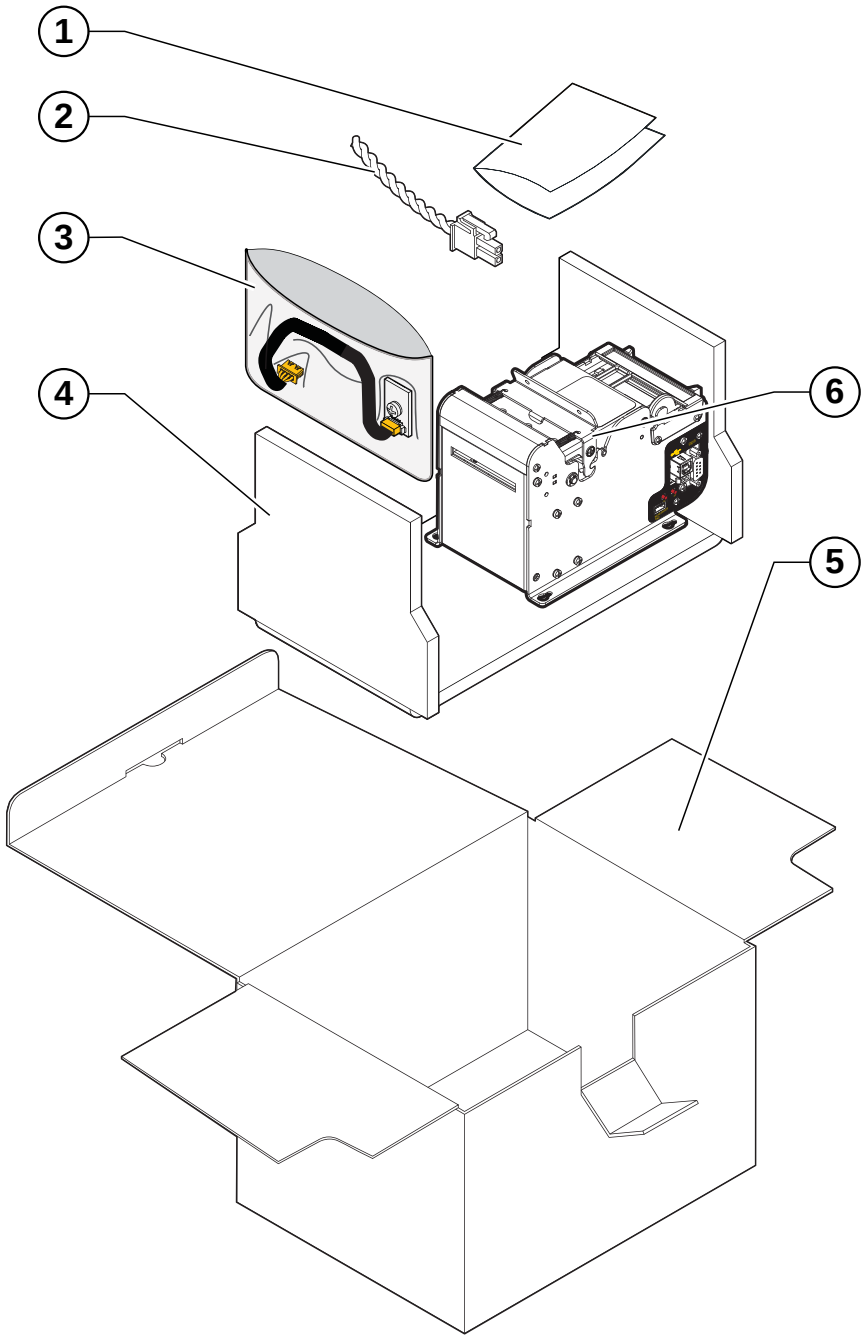
NOTE:	Gives important information or suggestions relative to the use of the printer.
ATTENTION:	Gives information that must be carefully followed to guard against damaging the printer.
DANGER:	Gives information that must be carefully followed to guard against operator injury or damage.

2 DESCRIPTION

2.1 Unpacking the device

Remove the printer from its carton being careful not to damage the packing material so that it may be re-used if the printer is to be transported in the future.
Make sure that all the components illustrated below are present and that there are no signs of damage. If there are, contact Customer Service.

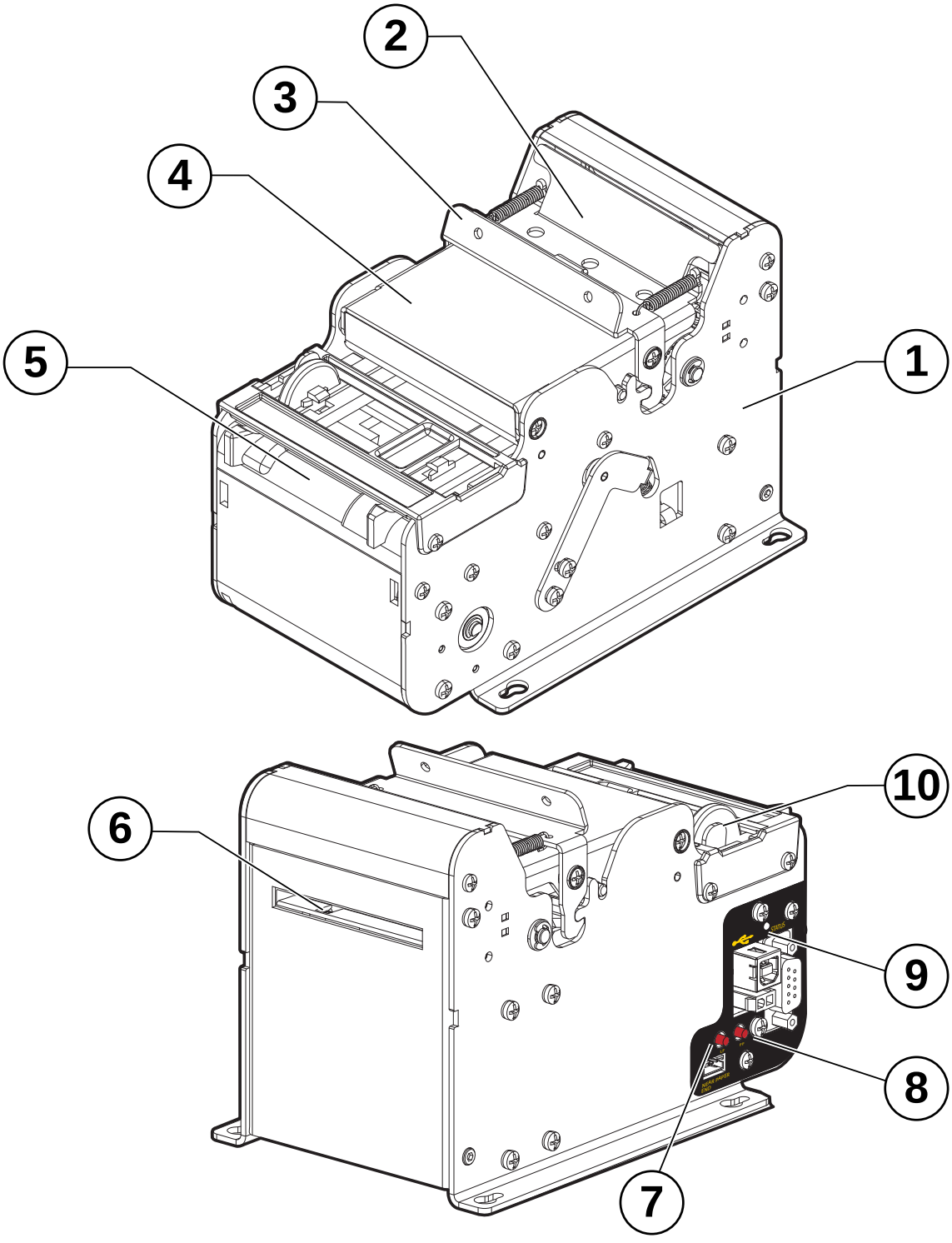
1. Installation instructions sheet
2. Power supply cable
3. Additional near paper end sensor with wiring
4. Foam packing shell
5. Box
6. Printer



- Open the printer packaging
- Remove the cable of power supply.
- Take out the foam packing shell.
- Take out the printer and remove it from its plastic covering.
- Keep the box, trays and packing materials in the event the printer must be transported/shipped in the future.

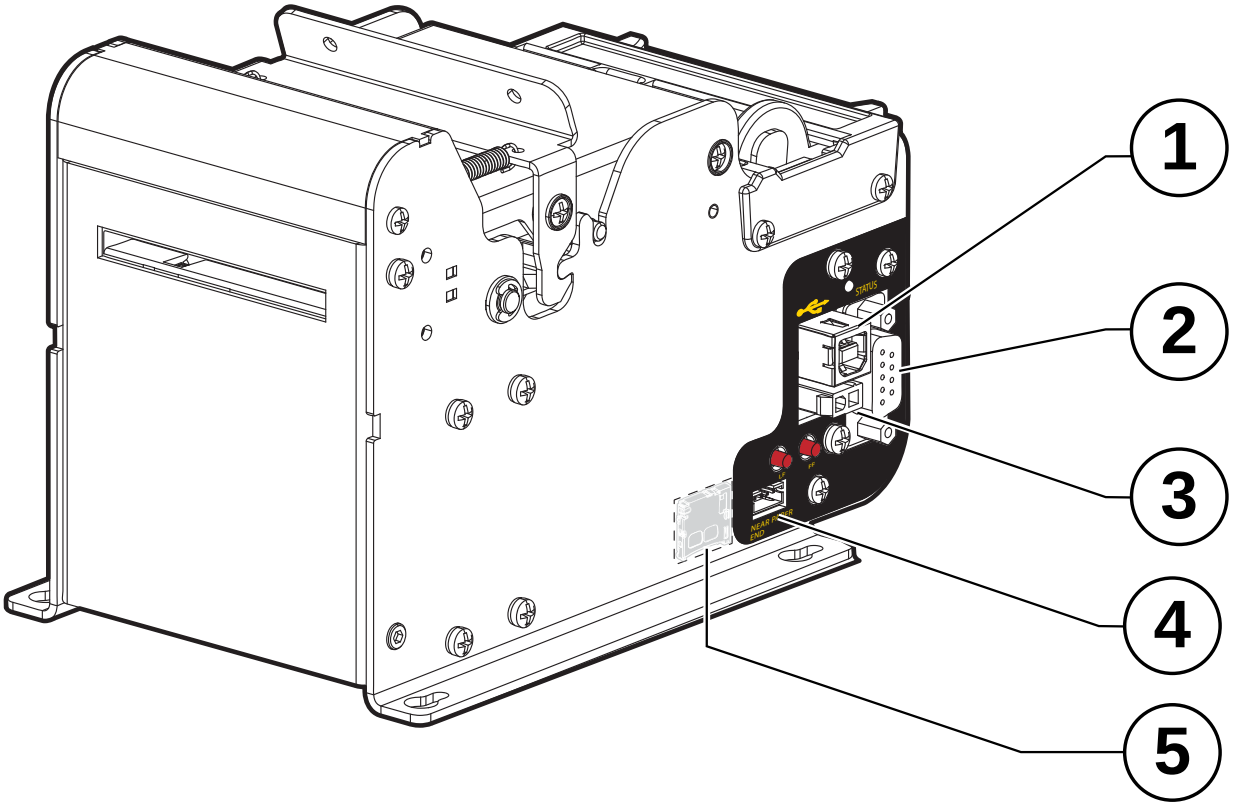
2.2 Device components: external views

1. Printer frame
2. Cutter unit
3. Printer cover
4. Printing head set
5. Paper input
6. Paper outfeed
7. LINE FEED key
8. FORM FEED key
9. Status led
10. Lever of paper mouth guide (adjustable)



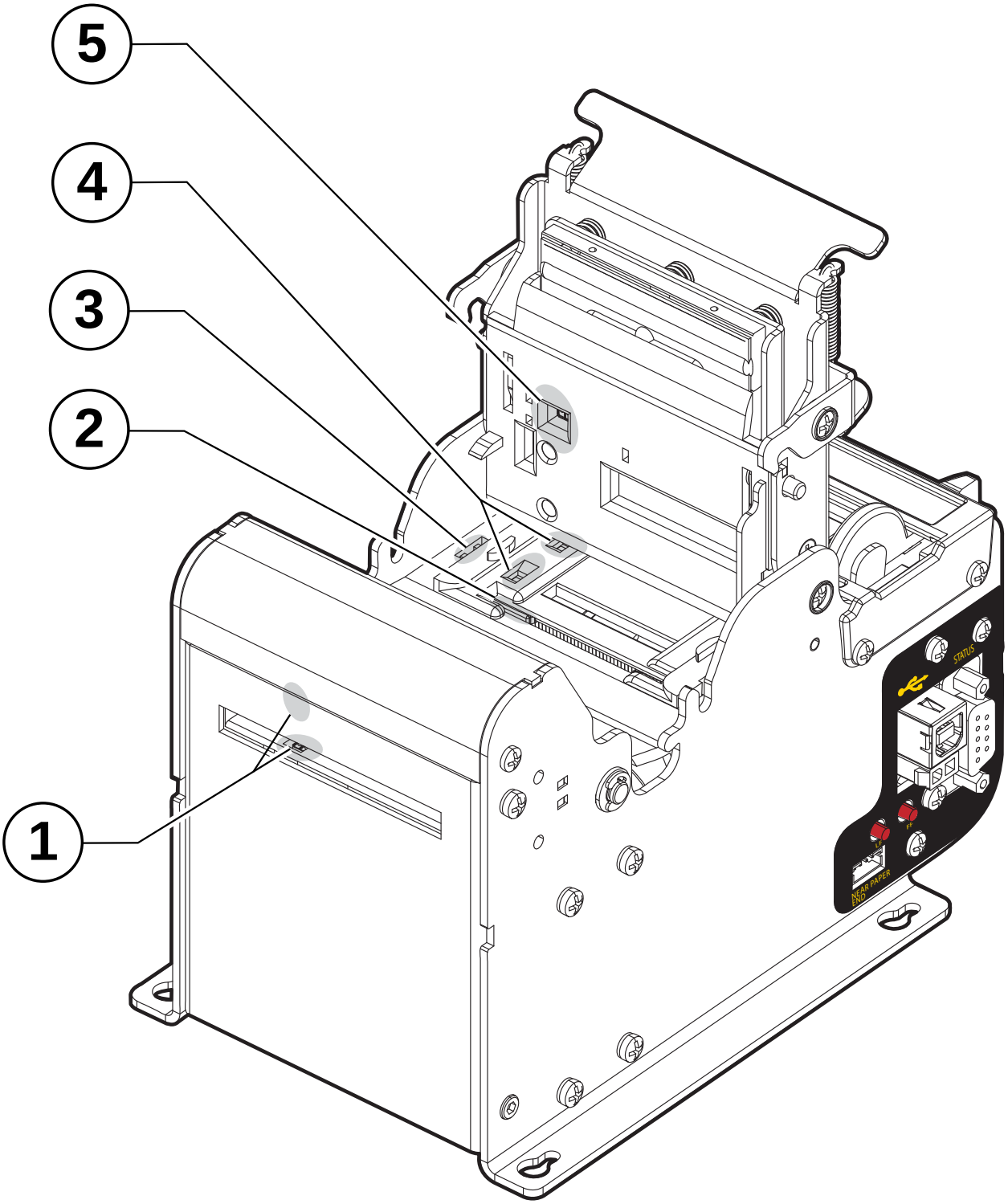
External view connectors

1. RS232 connector
2. USB connector
3. Power Supply connector
4. Connector for external near paper end sensor
5. SD/MMC (optional)



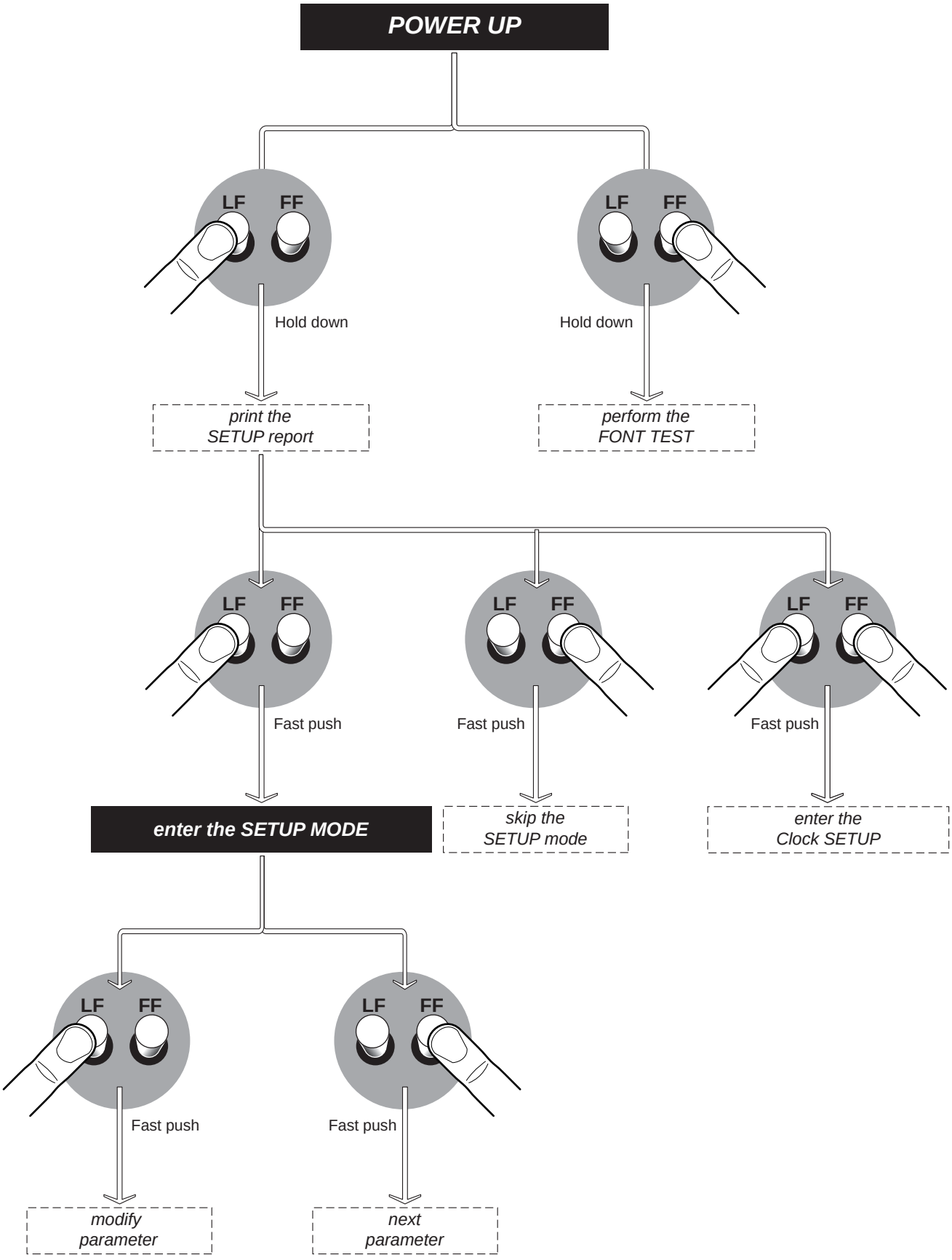
2.3 Device components: internal view

1. Paper presence sensors on output
2. Mobile sensor notch lower
3. Cover open sensor
4. Paper out presence
5. Upper transparence sensor and notch

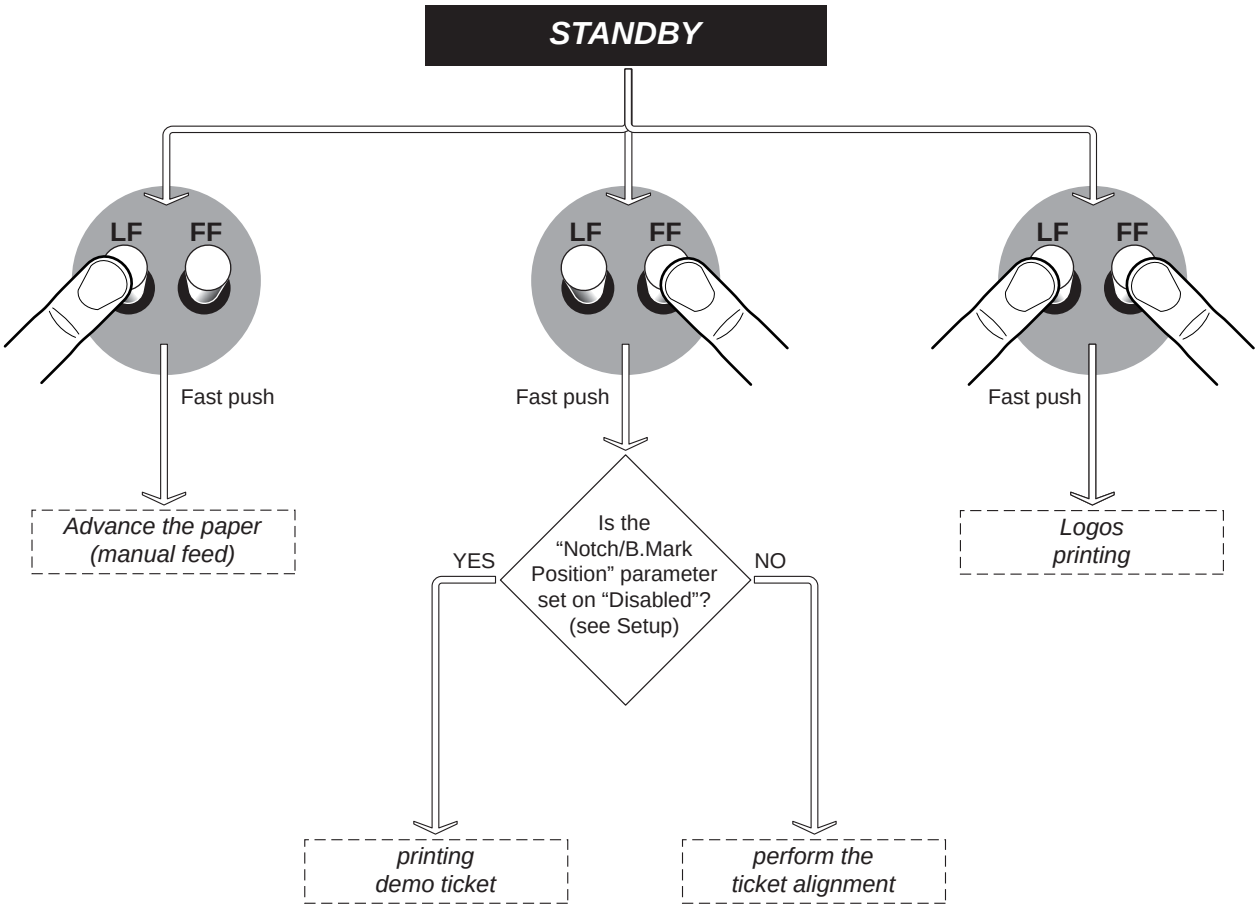


2.4 Keys functions: power up

The following figures show the functions of device's keys according to the operating condition.



2.5 Keys functions: standby



2.6 Status led flashes

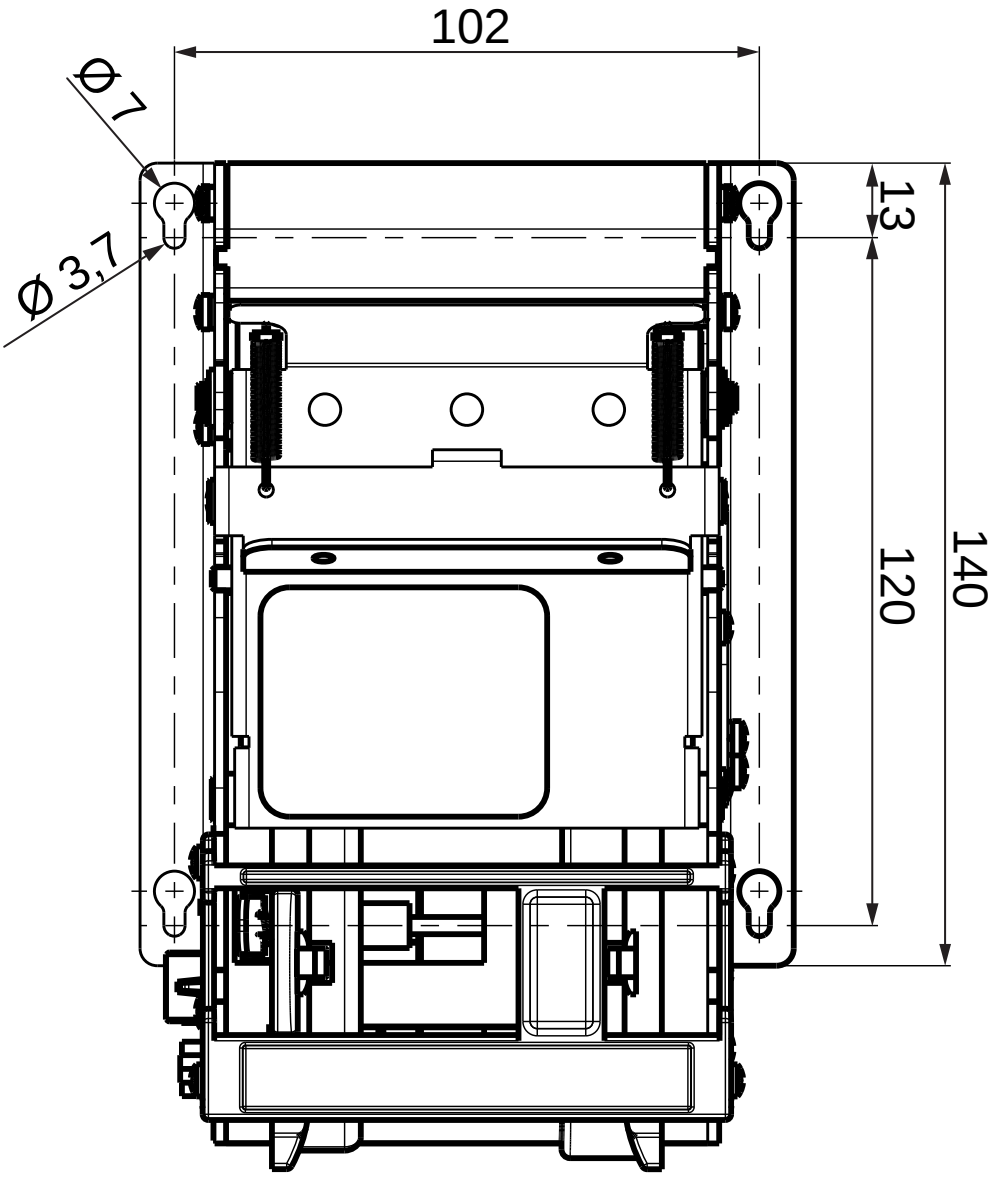
The Status led indicates hardware status of device. Given in the table below are the various led signals and the corresponding printer status.

STATUS LED			DESCRIPTION
-	○	*OFF*	PRINTER OFF
GREEN	●	*ON*	PRINTER ON : NO ERROR
GREEN COMMUNICATION STATUS	☼	*1 x*	RECEIVING DATA
		2 x	RECEIPT ERRORS (PARITY, FRAME ERROR, OVERRUN ERROR)
		3 x	COMMAND NOT RECOGNIZED
		4 x	COMMAND RECEIPT TIME OUT
		5 x	NEAR PAPER END
YELLOW RECOVERABLE ERROR	☼	*2 x*	PRINT HEAD OVER HEAT
		3 x	PAPER END
		4 x	PEPER JAM
		5 x	POWER SUPPLY VOLTAGE INCORRECT
		6 x	COVER OPEN
RED UNRECOVERABLE ERROR	☼	*3 x*	RAM ERROR
		4 x	EEPROM ERROR
		5 x	CUTTER ERROR

3 INSTALLATION

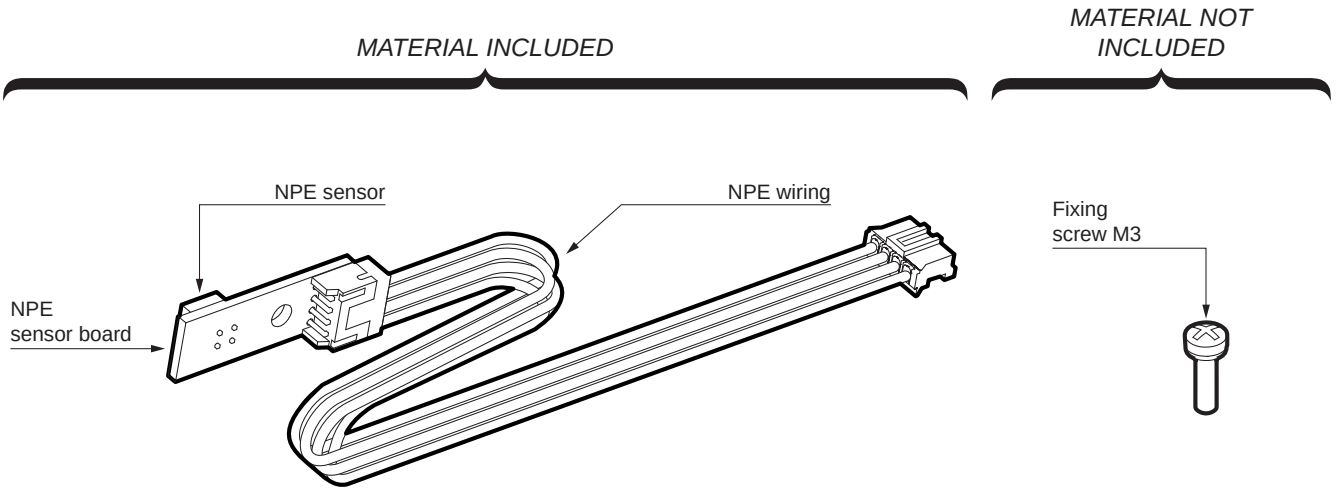
3.1 Fastening

The printer is provided with four fixing holes placed on lateral side (see following figure). To fasten the printer on a panel, use four M3 screws



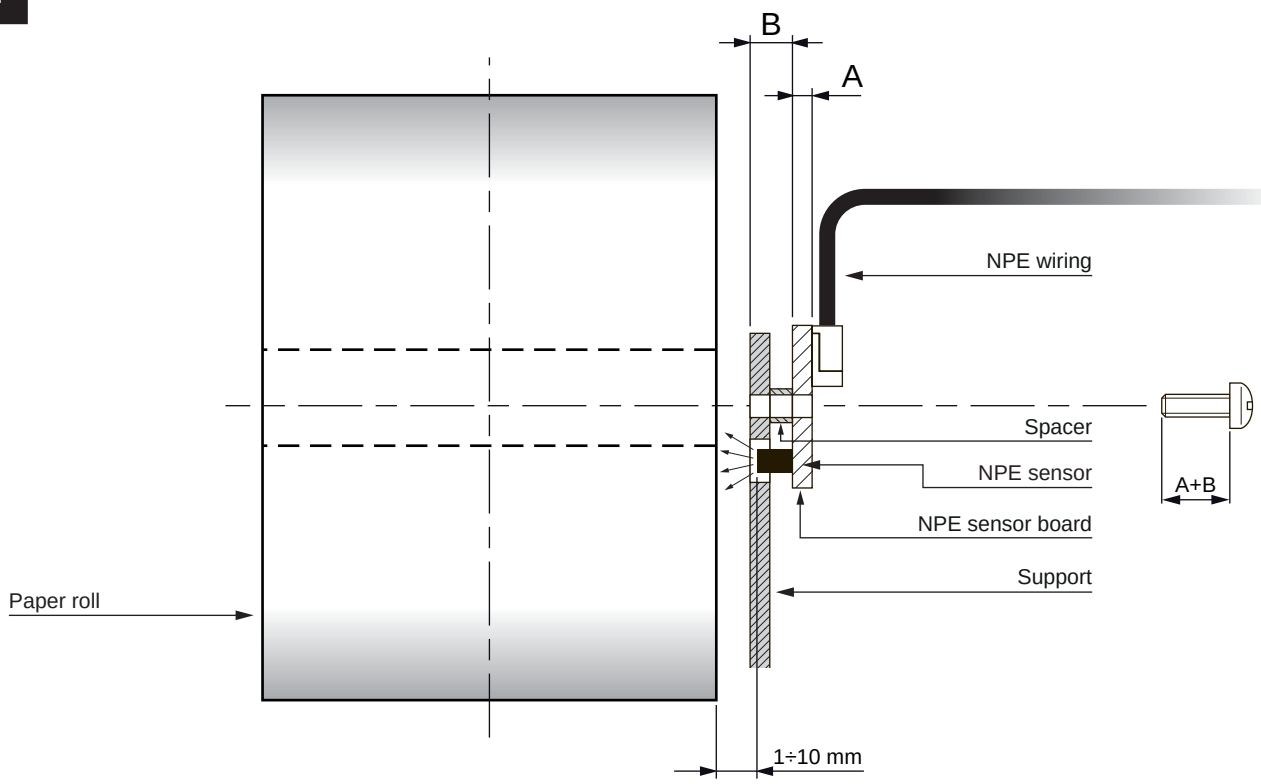
3.2 Additional near paper end sensor

The printer includes an additional near paper end sensor with wiring (see following figure). To fix the sensor use an M3 screw not supplied.



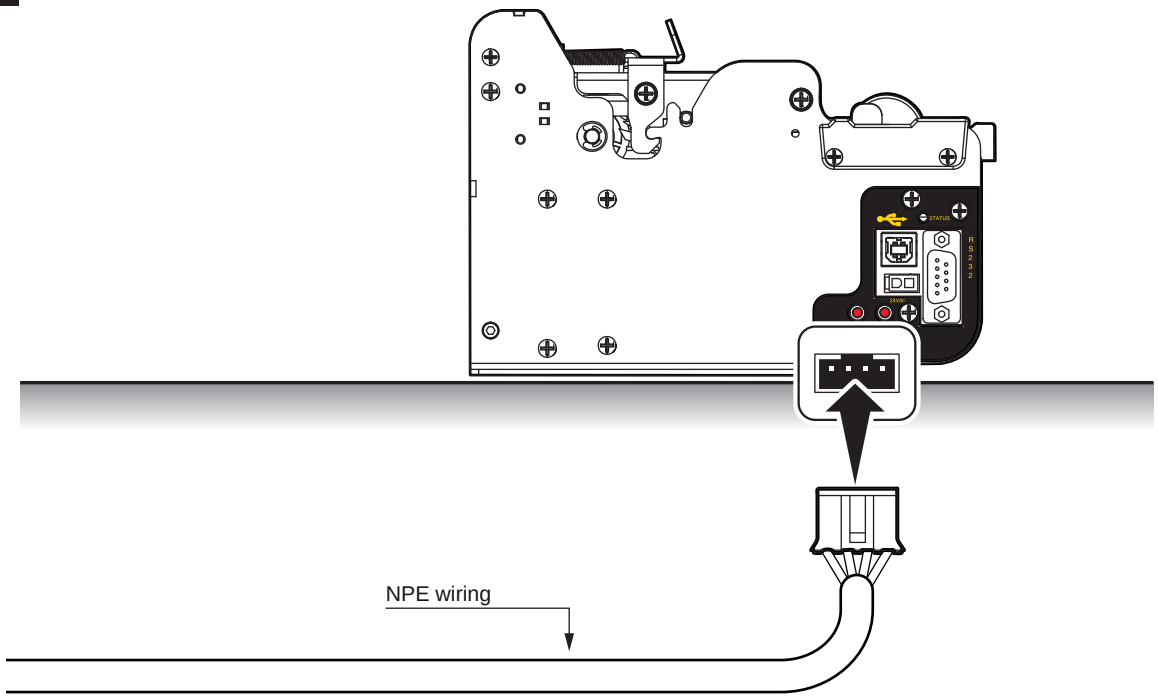
For the assembly procedure, proceed as follows:

1



Fix the near paper end sensor board to the support using an M3 screw not included.
For the correct functioning of the near paper end sensor, comply with the measures specif

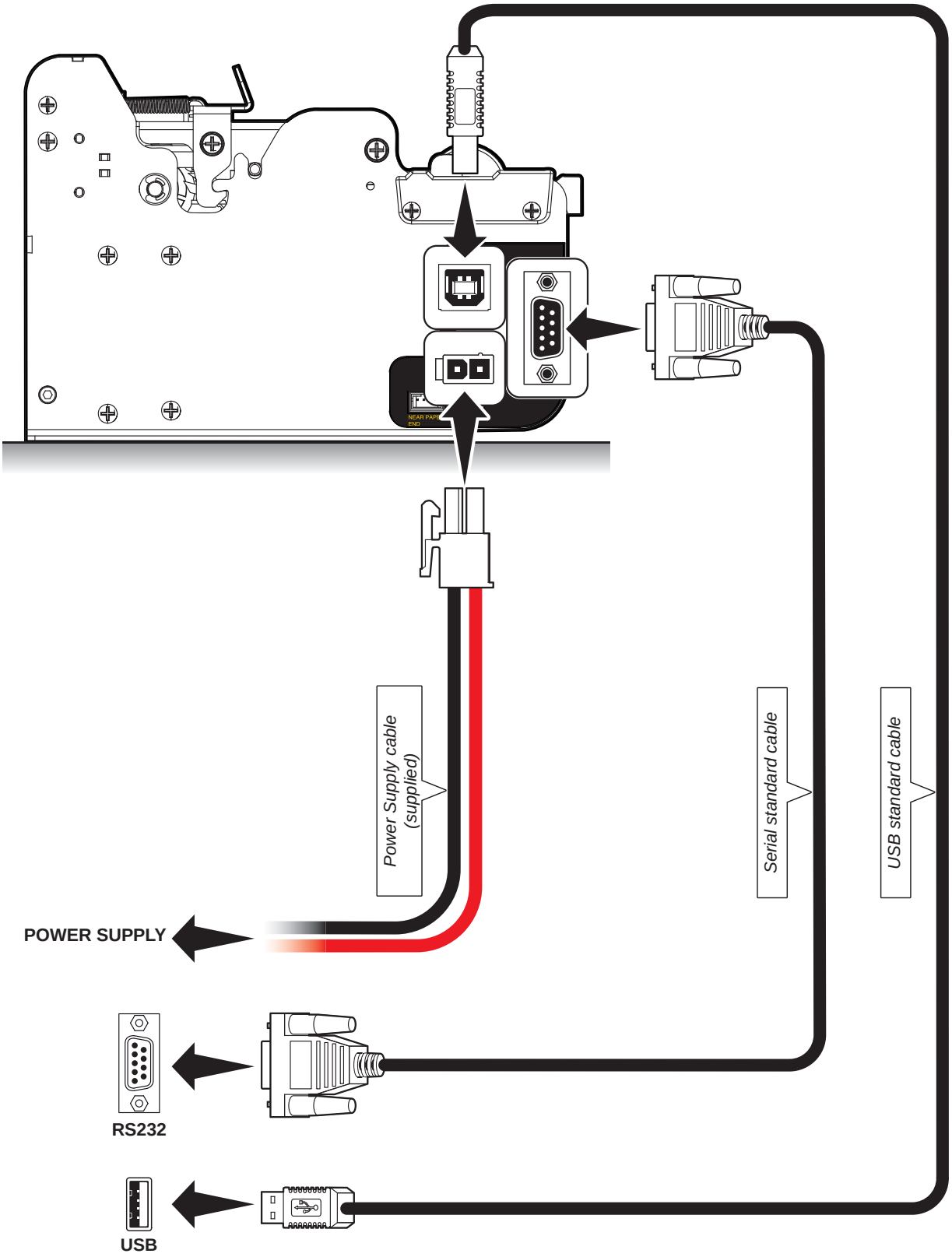
2



Connect the wiring coming from the near paper end sensor board
at the connector shown in figure

3.3 Connections

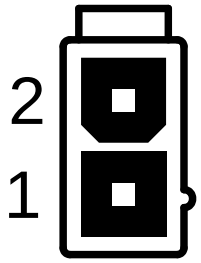
The following figures show the pollible connections for device.



WARNING:
In some using conditions, we recommend the installation of a ferrite core on the power supply cable.

NOTE: If RS232 and USB connectors are inserted, communication port is USB.

3.4 Pinout

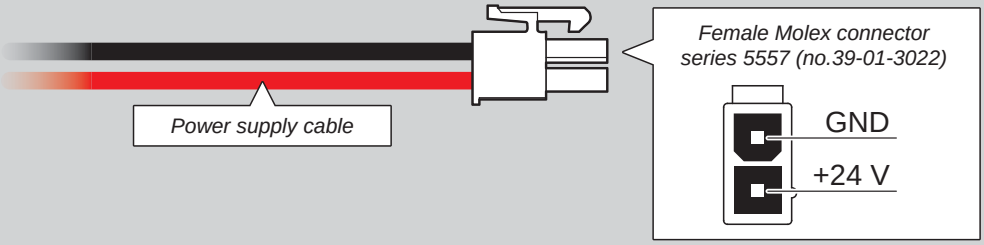


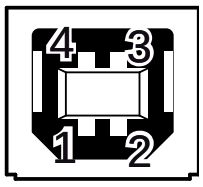
POWER SUPPLY
Male Molex connector (no. 39-28-1023)

J13	1	+24 Vdc
	2	GND

ATTENTION:
Respect power supply polarity.

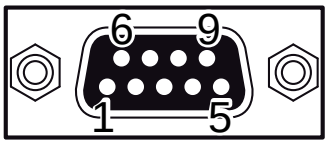
Note: ***Power supply cable***
The following figure shows the connector pinout of the power supply cable for the device:





USB INTERFACE
Female USB type B connector

J1	1	USB-VBUS (out)
	2	PD -0
	3	PD +0
	4	GND
	SH1	SHIELD
	SH2	SHIELD



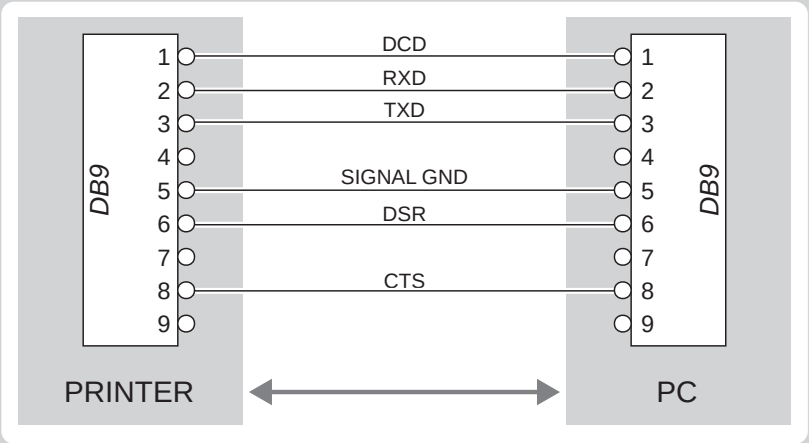
RS232 SERIAL INTERFACE

Female DB9 connector

J3	1	DTR	(out)	When “1”, printer is fed.
	2	TX	(out)	During transmission, takes the values “0” and “1” depending on data.
	3	RX	(in)	During reception, takes the values “0” and “1” depending on data.
	4	n.c.		
	5	GND		
	6	DTR	(out)	When “1”, printer is fed.
	7	CTS		
	8	RTS	(out)	When “1”, printer is ready to receive data
	9	n.c.		

Note: Given the presence of the RS232 standard, logic value “0” corresponds to a voltage level of between +3Vdc and +15Vdc and logic value “1” corresponds to a voltage level of between -3Vdc and -15Vdc.

Note: ***KPM150H > PC connection***
The following picture shows an example of connection between the printer and a personal computer using 9 pin female RS232 serial connectors:



Note: When use a serial cable, we recommend the installation of a ferrite core on the power supply cable.

3.5 Driver

The drivers are available for the following operating system:

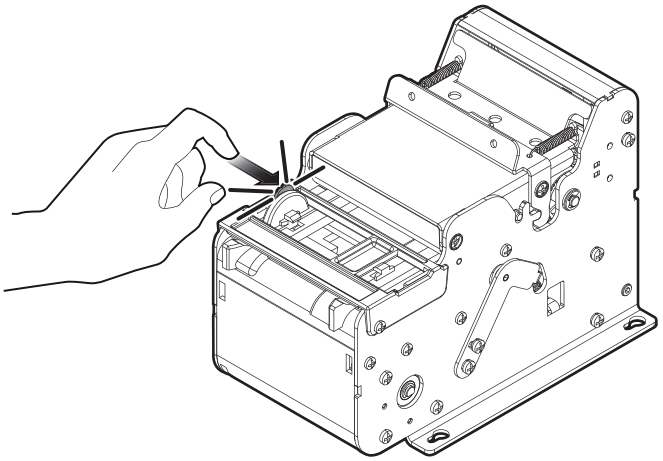
OPERATING SYSTEM	INSTALLATION PROCEDURE
Windows XP	From the START menu, press Enter and key-in the path where the SW was saved on your PC, then click OK. Follow the instructions that appear on the screen to install the driver.
Windows VISTA (32/64bit)	
Windows 7 (32/64bit)	

All drivers can be found in the DOWNLOAD section of the web site www.custom.biz.

4 OPERATION

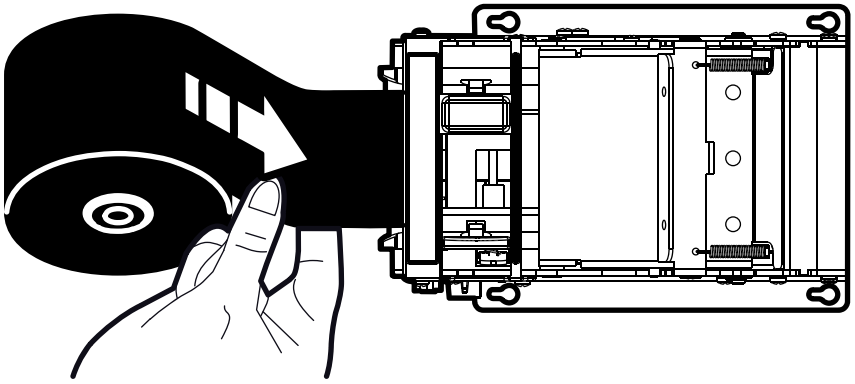
4.1 Adjusting paper width

Paper width may be adjusted from a minimum value of 20mm to a maximum of 54mm using the lever of paper mouth guide located at the paper infeed opening.



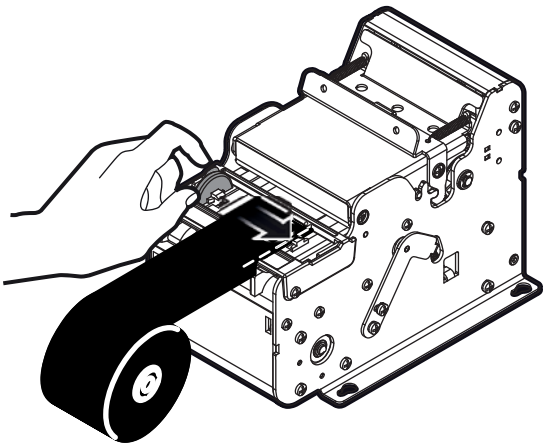
To adjust the paper width, proceed as follows :

1



Position the paper roll in the loading paper guide,
so that it unrolls correctly.

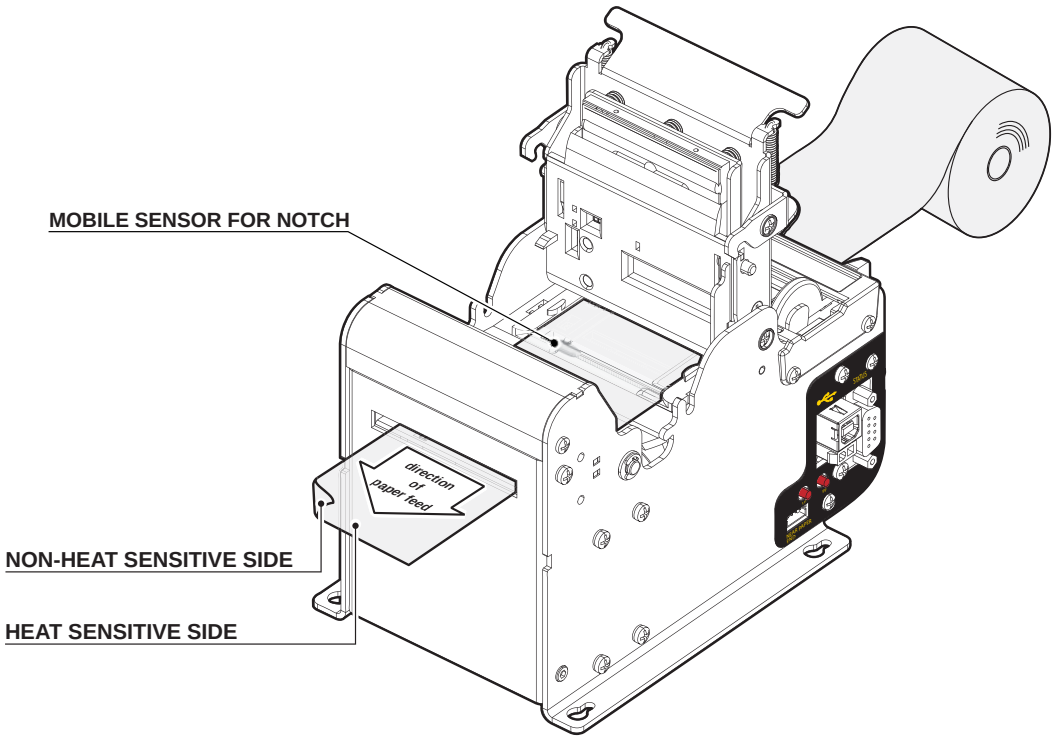
2



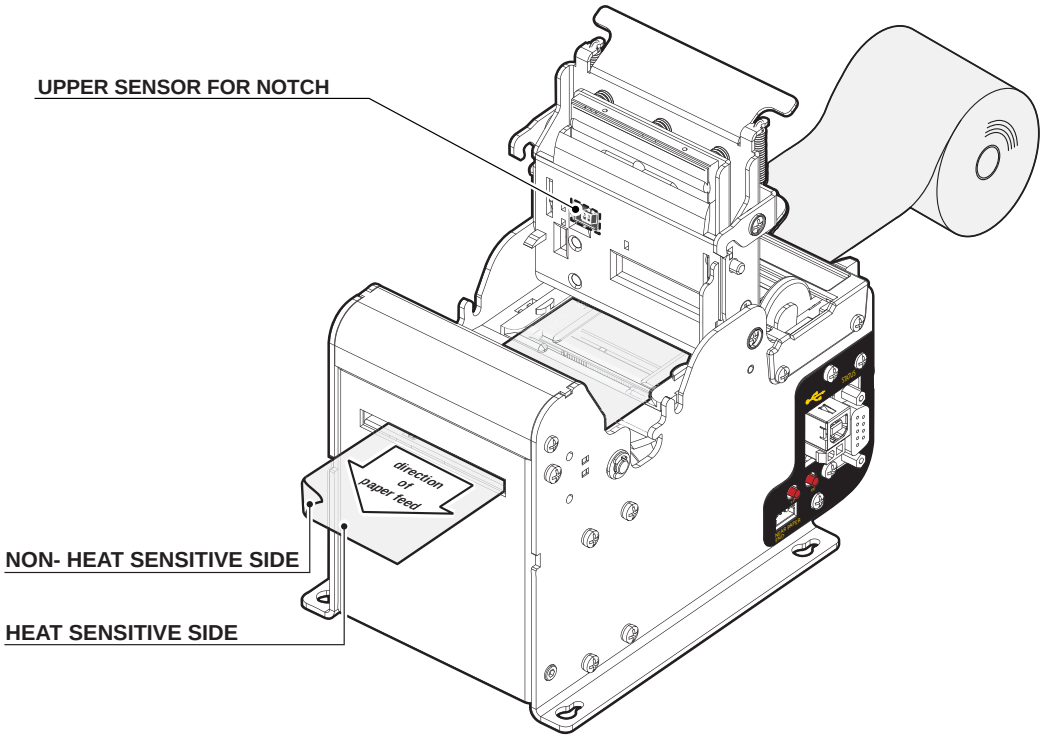
Press the lever of paper mouth guide and move it
to regulate the width of the paper guide in according to type of paper used.

4.2 Adjusting notch sensor position

Printer is provided with a mobile sensor for the detection of alignment notch placed on the non-heat sensitive side of paper (lower sensor) as shown in the following figure.

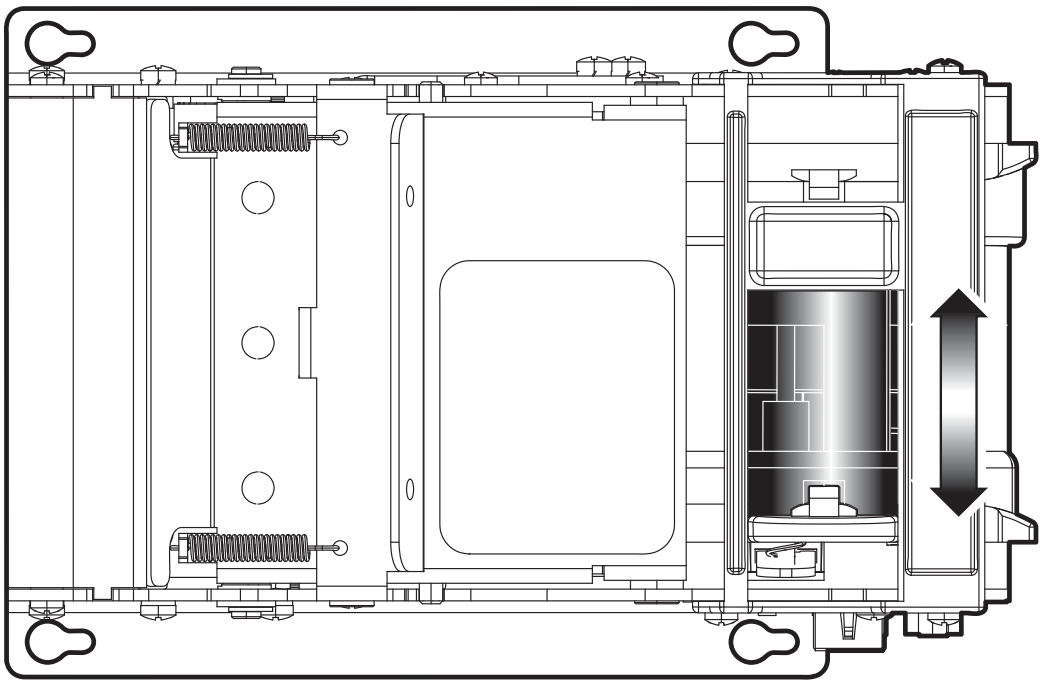


In addition, the printer is equipped with another sensor for alignment notch placed on the heat sensitive side of paper (located upper than the plane of the paper inside the printer). This sensor is positioned on the upper flat under the print head and is fixed.



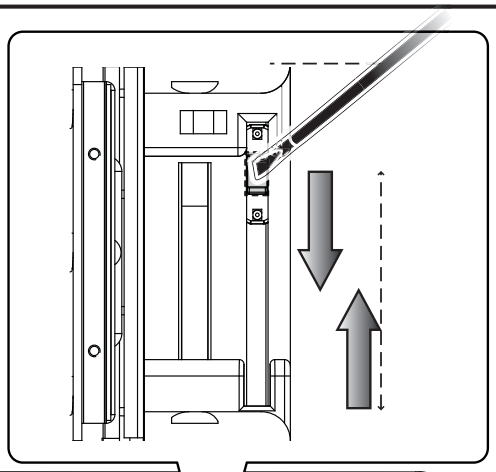
To adjust the mobile sensor position according to the notch position on paper, proceed as follows:

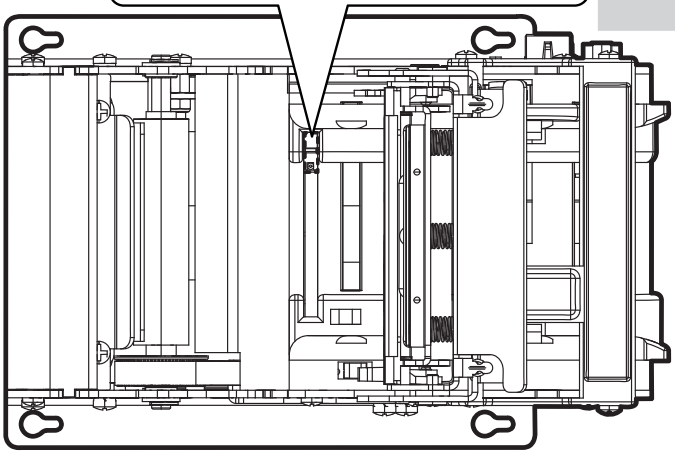
1



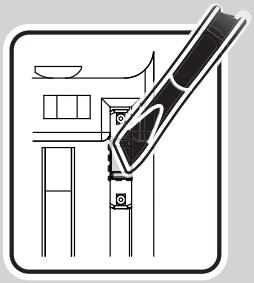
Adjust the paper width (see previous paragraphs).

2





ATTENTION:
To avoid damaging the sensor, not to apply too much force in moving the sensor inside its sliding guide.

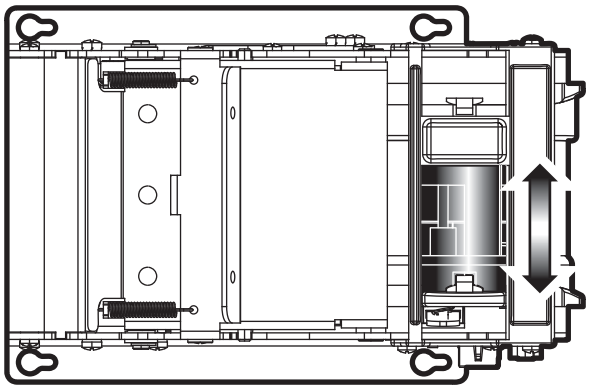


Move the lower sensor to the desired position
using a small screwdriver or a pencil.

4.3 Paper roll insertion

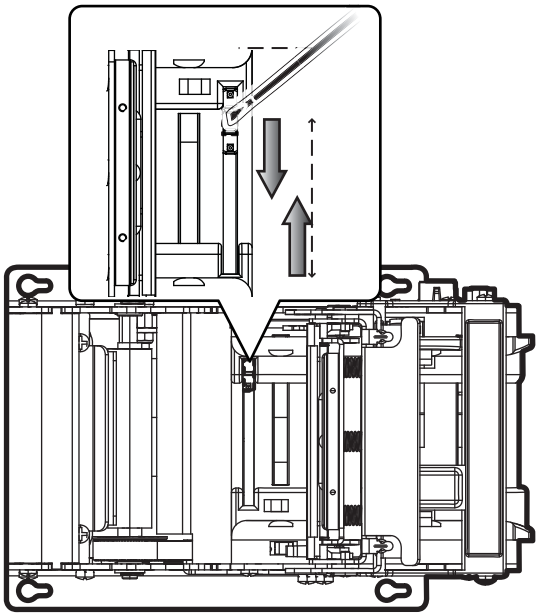
At every change of paper roll, check inside the printer. To change the paper roll, proceed as follows:

1



Adjust the paper width (see previous paragraphs).

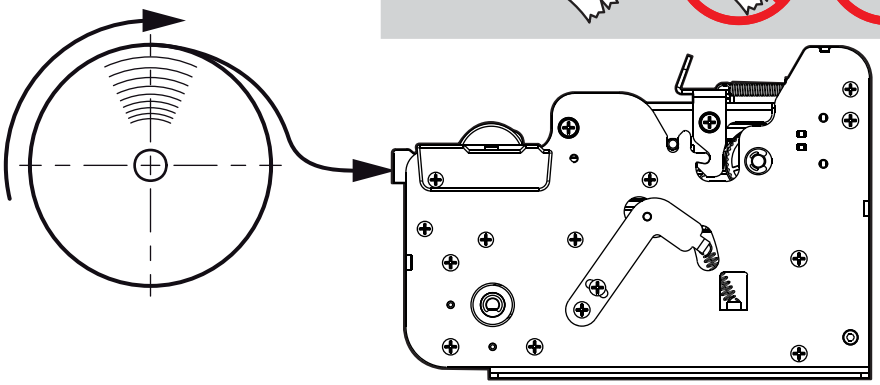
2



Adjust the notch sensor position as described in par.4.2.

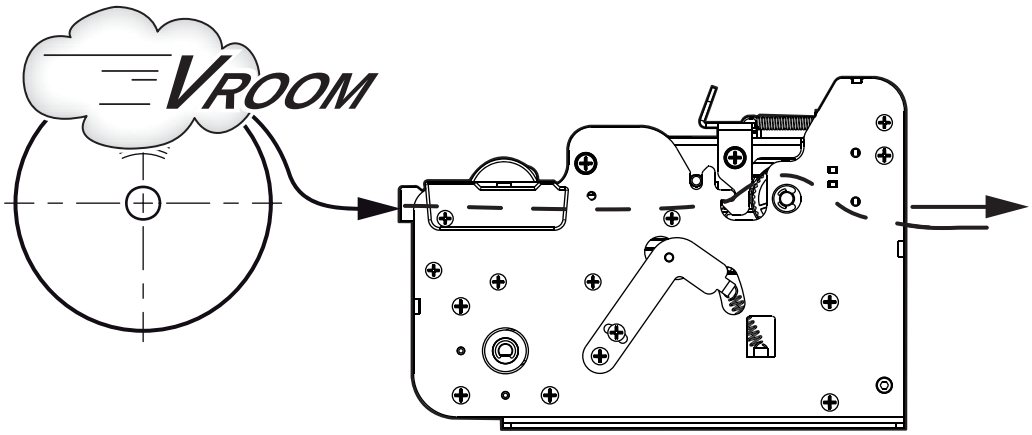
3

ATTENTION:
Make sure the cut is straight.



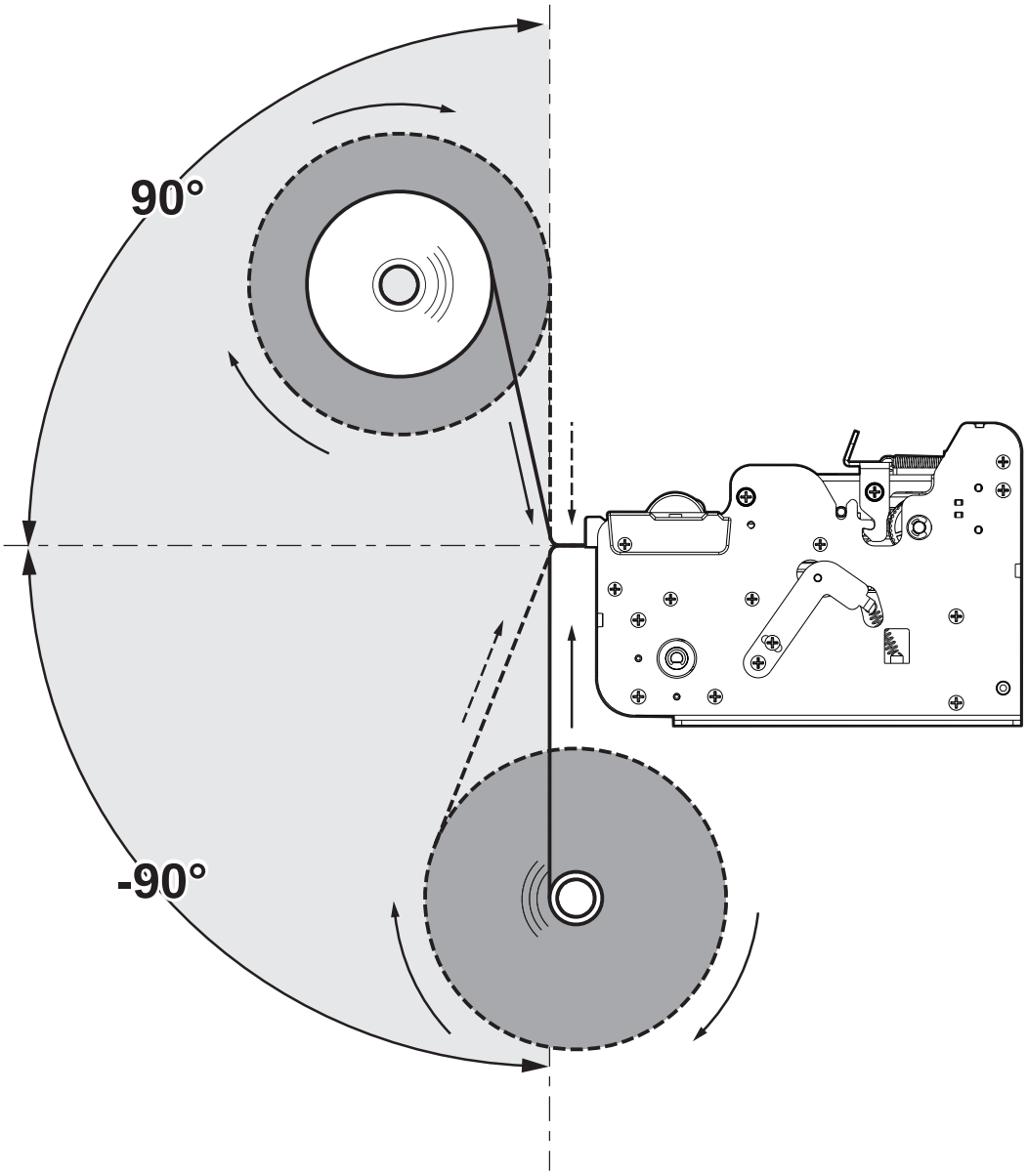
Position the paper roll, so that it unrolls correctly as shown in figure.

4



Insert the paper into the paper infeed opening and wait for it to load automatically.

The following figure gives the limit positions of the paper roll related to the printer for a correct paper loading without a paper roll holder support.
The direction of the paper will always form a maximum angle of 90 ° or -90 ° with the insertion plane of paper inside the printer.

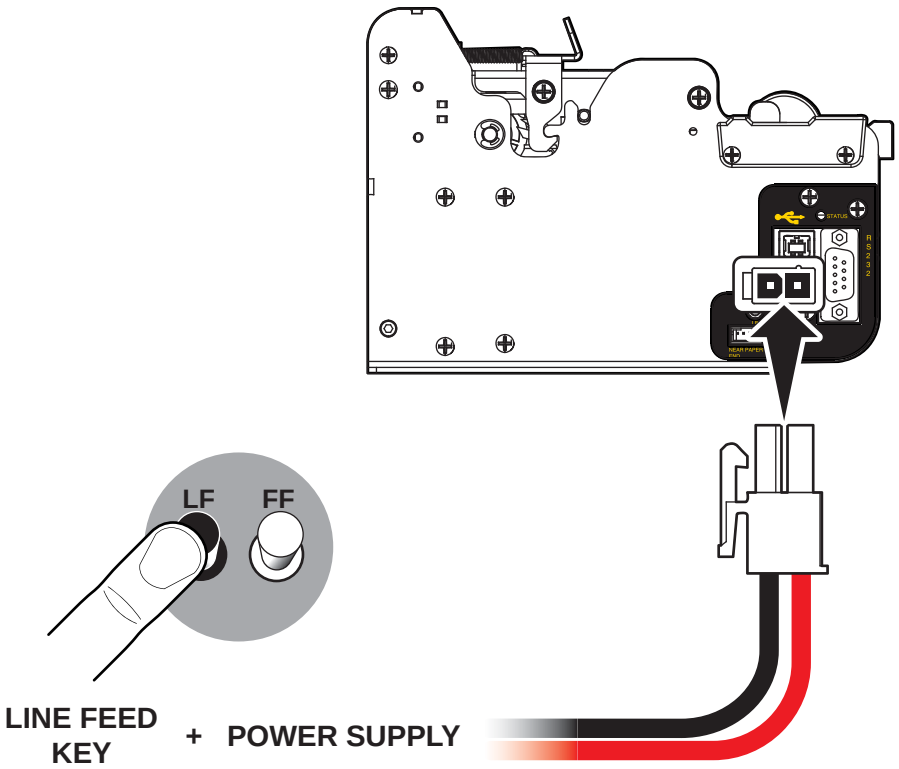


5 CONFIGURATION

5.1 Configuration mode

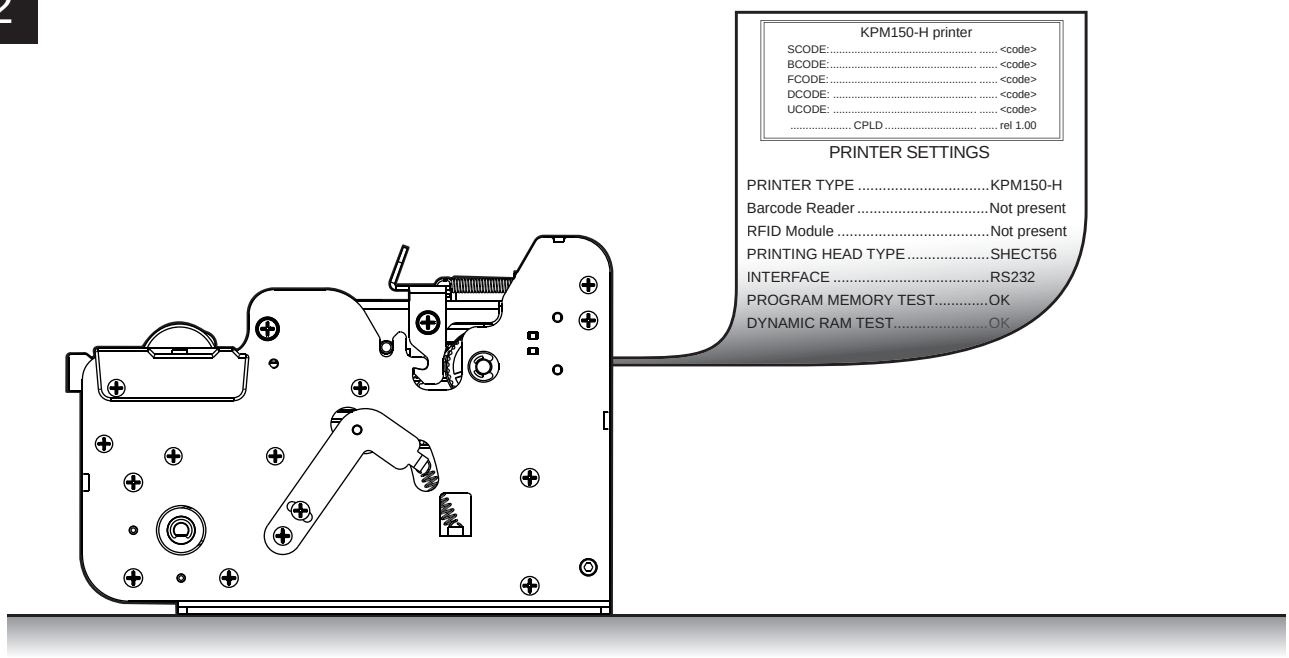
To enter the configuration mode and print a SETUP report with the operating parameters of the printer, proceed as follows.

1



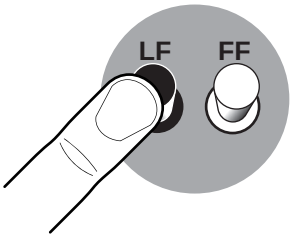
During power-up, hold down the LINE FEED key while the wiring is plugged into the power supply connector of the printer.

2



The device prints a SETUP report.

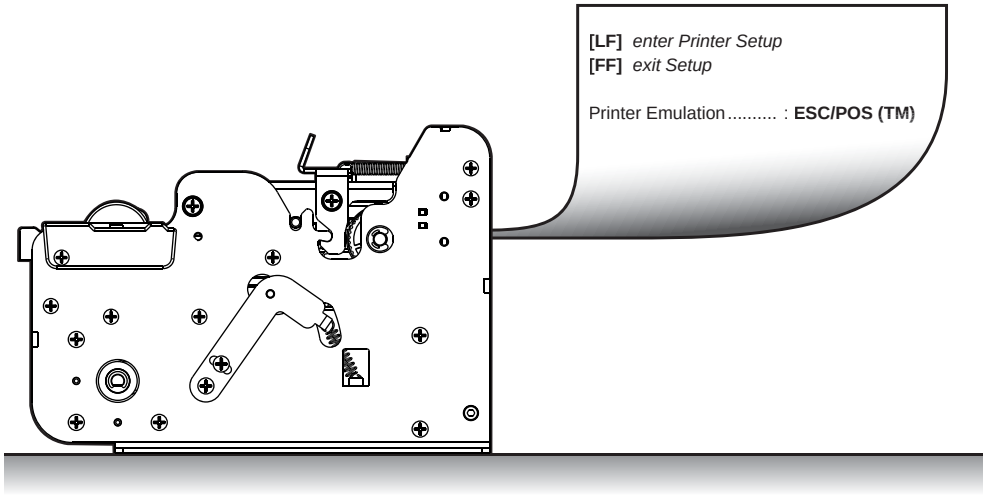
3



LINE FEED KEY

Press the LINE FEED key to enter the configuration mode.

4

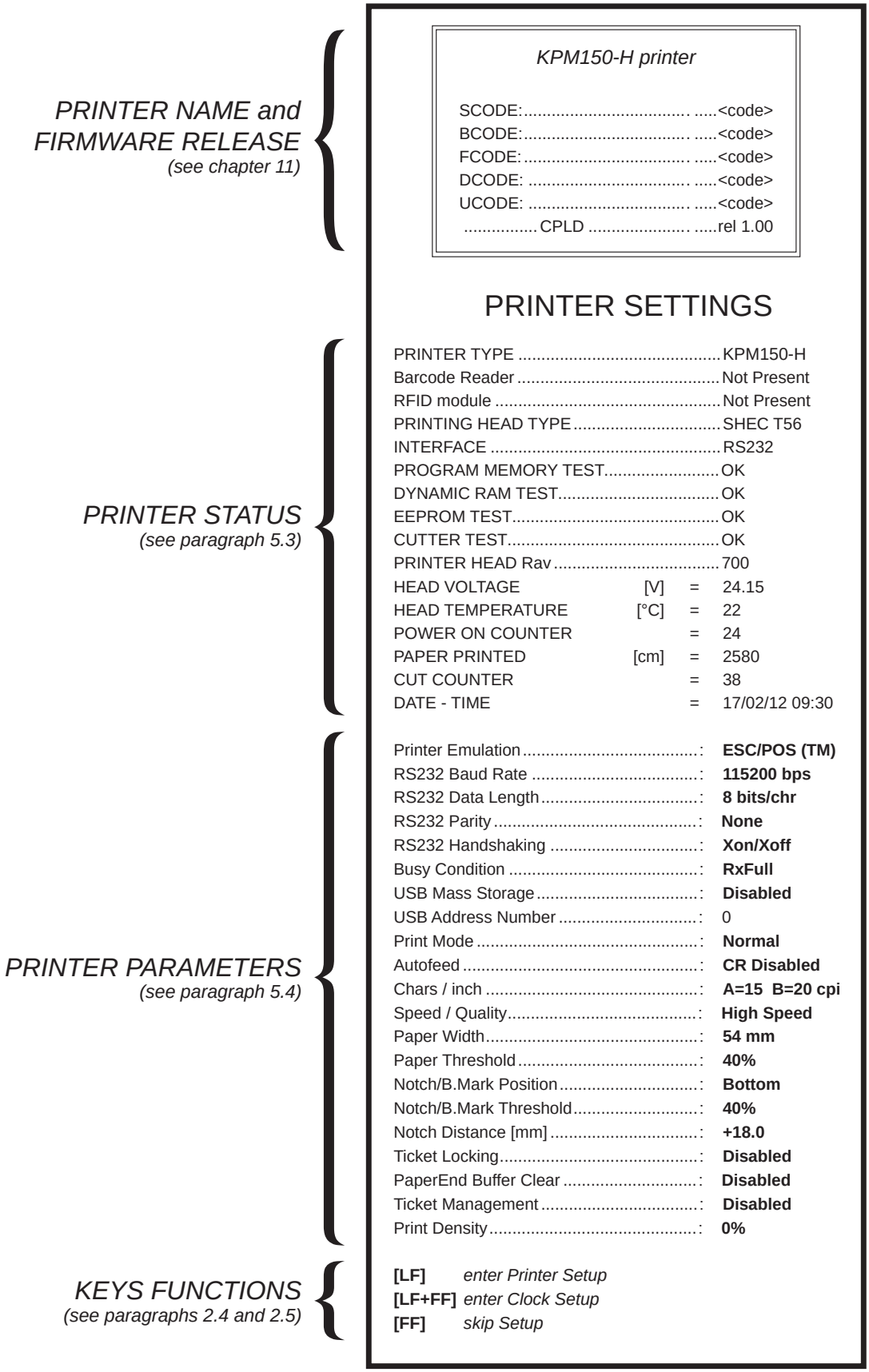


Proceed with the configuration by using the keys according the functions printed on paper (see par.2.3).
For description and values of setup parameters, see the following paragraphs.

NOTE:
During power-up, if the LINE FEED key is held down, the printer enters the auto-test routine and prints out the setup report. The printer will remain in standby in Hexadecimal dump mode (see following paragraphs) until another key is pressed or characters are received through the printer communication port.
When the FORM FEED key is pressed, the printer enters parameter configuration.
When the LINE FEED key is pressed, the printer exits setup and terminates the Hexadecimal dump function.

5.2 Setup report

The following figure shows the setup report of the printer. The shown values for parameters are sample values; for the list and the description of printer parameters see the following paragraphs.


PRINTER NAME and FIRMWARE RELEASE
(see chapter 11)
PRINTER STATUS
(see paragraph 5.3)
PRINTER PARAMETERS
(see paragraph 5.4)
KEYS FUNCTIONS
(see paragraphs 2.4 and 2.5)
KPM150-H printer
SCODE:..... .....<code>
BCODE:..... .....<code>
FCODE:..... .....<code>
DCODE: ....<code>
UCODE: ....<code>
..... CPLD ....rel 1.00
PRINTER SETTINGS
PRINTER TYPE KPM150-H
Barcode Reader ..... Not Present
RFID module ..... Not Present
PRINTING HEAD TYPE ..... SHEC T56
INTERFACE RS232
PROGRAM MEMORY TEST..... OK
DYNAMIC RAM TEST..... OK
EEPROM TEST..... OK
CUTTER TEST..... OK
PRINTER HEAD Rav 700
HEAD VOLTAGE [V] = 24.15
HEAD TEMPERATURE [°C] = 22
POWER ON COUNTER = 24
PAPER PRINTED [cm] = 2580
CUT COUNTER = 38
DATE - TIME = 17/02/12 09:30
Printer Emulation ..... : ESC/POS (TM)
RS232 Baud Rate ..... : 115200 bps
RS232 Data Length ..... : 8 bits/chr
RS232 Parity ..... : None
RS232 Handshaking ..... : Xon/Xoff
Busy Condition ..... : RxFull
USB Mass Storage ..... : Disabled
USB Address Number ..... : 0
Print Mode ..... : Normal
Autofeed ..... : CR Disabled
Chars / inch ..... : A=15 B=20 cpi
Speed / Quality..... : High Speed
Paper Width..... : 54 mm
Paper Threshold ..... : 40%
Notch/B.Mark Position ..... : Bottom
Notch/B.Mark Threshold..... : 40%
Notch Distance [mm] ..... : +18.0
Ticket Locking..... : Disabled
PaperEnd Buffer Clear ..... : Disabled
Ticket Management ..... : Disabled
Print Density..... : 0%
[LF] enter Printer Setup
[LF+FF] enter Clock Setup
[FF] skip Setup

5.3 Printer status

Printer operating status is indicated in the configuration print-out in which, next to the name of the components displayed, the following information is given:

PRINTER TYPE	*is given the device model.*
Barcode Reader	*is given the presence of the barcode reader.*
RFID module	*is given the presence of the RFID reader/writer.*
PRINTING HEAD TYPE	*is given the printing head model.*
INTERFACE	*is given the interface present.*
PROGRAM MEMORY TEST	*the message OK appears if functioning and NOT OK if faulty.*
DYNAMIC RAM TEST	*the message OK appears if functioning and NOT OK if faulty.*
EEPROM TEST	*the message OK appears if functioning and NOT OK if faulty.*
CUTTER TEST	*the message OK appears if functioning and NOT OK if faulty.*
PRINTER HEAD Rav	*is given the resistance of a dot head.*
HEAD VOLTAGE	*is given the voltage of the head.*
HEAD TEMPERATURE	*is given the temperature of the head.*
POWER ON COUNTER	*is given the number of power-ups made.*
PAPER PRINTED	*is given the number of centimeters of paper printed.*
CUT COUNTER	*is given the number of cuts made.*
DATE - TIME	*is given the* date / time of *the device.*

5.4 Printer parameters

This printer allows the configuration of the parameters listed in the following table.
The parameters marked with the symbol [D] are the default values.
Settings remain active even after the printer has been turned off and they are stored in non-volatile memory.

PRINTER EMULATION	*Available emulations for the device:* *SVELTA [D]* *ESC/POS™*
RS232 BAUD RATE	*Communication speed of the serial interface:* *115200 [D] 38400 9600 2400* *57600 19200 4800 1200* **NOTE:** Parameter valid only with serial interface.
RS232 DATA LENGTH	*Number of bit used for characters encoding:* *7 bits/car* *8 bits/car [D]* **NOTE:** Parameter valid only with serial interface.
RS232 PARITY	*Bit for the parity control of the serial interface:* *None [D] = parity bit omitted* *Even = even value for parity bit* *Odd = odd value for parity bit* **NOTE:** Parameter valid only with serial interface.
RS232 HANDSHAKING	*Handshaking:* *XON/XOFF [D] = software handshaking* *Hardware = hardware handshaking (CTS/RTS)* **NOTE:** Parameter valid only with serial interface.
BUSY CONDITION	*Activation mode for Busy signal:* *OffLine/ RXFull = Busy signal is activated when the printer is both in OffLine status and the buffer is full* *RXFull [D] = Busy signal is activated when the buffer is full* **NOTE:** Parameter valid only with serial interface.
USB MASS STORAGE	*Sharing mode from Mass Storage:* *Disabled [D] = sharing mode disabled* *Enabled = sharing mode enabled*
USB ADDRESS NUMBER	*Numerical address code for the univocal identification of the USB device (in case of more than a USB device connected with the same PC):* *0 [D] 4 8* *1 5 9* *2 6* *3 7*

PRINT MODE

Printing mode:

Normal [D] = enables printing in normal writing way
Reverse = enables printing rotated 180 degrees

AUTOFEED

Setting of the Carriage Return character:

CR disabled [D] =Carriage Return disabled
CR enabled = Carriage Return enabled

NOTE: The parameter is printed only withESC/POS™ emulation enabled.

CHARS / INCH

Font selection:

200 dpi model	*300 dpi model*
A = 11 cpi, B = 15 cpi [D]	*A = 16 cpi, B = 23 cpi*
A = 15 cpi, B = 20 cpi	*A = 23 cpi, B = 30 cpi*

NOTE: CPI = Characters Per Inch
NOTE: The parameter is printed only withESC/POS™ emulation enabled.

SPEED / QUALITY

Setting of printing speed and printing quality:

Normal
High Quality
High Speed [D]

PAPER WIDTH

Width of printing area:

20 mm	*28 mm*	*36 mm*	*44 mm*	*52 mm*
22 mm	*30 mm*	*38 mm*	*46 mm*	*54 mm [D]*
24 mm	*32 mm*	*40 mm*	*48 mm*	
26 mm	*34 mm*	*42 mm*	*50 mm*	

PAPER THRESHOLD

Threshold value (in percent) for the recognition of the presence of paper by the paper presence sensor:

30%	*70%*
40% [D]	*80%*
50%	*90%*
60%	

NOTCH/B.MARK POSITION

Position of the notch alignment and choice of appropriate notch sensor:

Disabled [D] =	*the notch alignment is not performed*
Bottom =	*the notch position is detected by the lower sensor (reflection)*
Trasparent =	*the notch position is detected by sensors both upper and lower (transparence)*
Top =	*the notch position is detected by the upper sensor (reflection)*

NOTCH/B.MARK THRESHOLD

Threshold value (in percent) for the recognition of the presence of notch by the notch sensor:

30%	*70%*
40% [D]	*80%*
50%	*90%*
60%	

NOTE: If the “Notch Position” parameter is disabled, this parameter is not printed.

NOTCH DISTANCE

"Notch Distance" is the minimum distance (in mm) between the upper edge of ticket and the notch (see chapter 10).
The numeric value of the distance is made up with the following four parameters for the setting of three digits (two for the integer part of the number and one for the decimal part) and of the sign:

NOTCH DISTANCE SIGN	*Sign setting:* *+ [D] = positive distance* *- = negative distance*
NOTCH DISTANCE [mm x 10]	*Setting the digit for tens:* *0 [D] 3 6 9* *1 4 7* *2 5 8*
NOTCH DISTANCE [mm x 1]	*Setting the digit for units:* *0 [D] 3 6 9* *1 4 7* *2 5 8*
NOTCH DISTANCE [mm x .1]	*Setting the digit for decimals:* *0 [D] 3 6 9* *1 4 7* *2 5 8*

NOTE: For example, to set the notch distance to 15 mm, modify the parameters as follows:
Notch Distance Sign = +
Notch Distance [mm x 10] = 1
Notch Distance [mm x 1] = 5
Notch Distance [mm x .1] = 0
NOTE: If the "Notch Position" parameter is disabled, the parameters for the "Notch Distance" are not printed.

TICKET LOCKING

This parameter enables/disables the block of the paper inside the device where the ticket is not cut with the cutter, but is presented for the manual tear off by the user:

Disabled [D] = paper block disabled
Enabled = paper block enabled

NOTE: If the "Notch Position" parameter is disabled, the parameter is not printed.

PAPEREND BUFFER CLEAR

Cleaning mode of the data in receive buffer, if the printing is stopped due to lack of paper:

Disabled [D] = The data remain in the receive buffer. When the paper runs out, the printer keeps the remaining data in the receive buffer and prints the remaining portion of the ticket after that the new paper is loaded.
Enabled = When the paper runs out, all data in the receive buffer are deleted.

TICKET MANAGEMENT

This parameter allows the ticket management:

Disabled [D] = no check
Short Label = it is possible to manage labels with length smaller than the distance between the notch sensor and the printing line; the device always performs the alignment to the next ticket and does not execute the paper recovery after cut even if set by Windows driver. After cut paper recovery management can be set by Windows driver or by $1C $C1 command.

USB Virtual COM	*This parameter allows to set the USB port as a virtual serial port:* *Disabled [D] = USB port as a virtual serial disabled* *Enabled = USB port as a virtual serial enabled* **NOTE:** To use this configuration it is necessary to install an additional driver.
AutoDetect Jam	*This parameter allows to detect the regular alternation of label and gap, in order to avoid serious jams due to curling of the roll or peeling of the labels. The printer stops if the alarm jam occurs.* *Disabled [D] = automatic detection jam disabled* *Enabled = automatic detection jam enabled*
PRINT DENSITY	*Adjusting the printing density:* *-50% -12% +25%* *-37% 0 [D] +37%* *-25% +12% +50%*

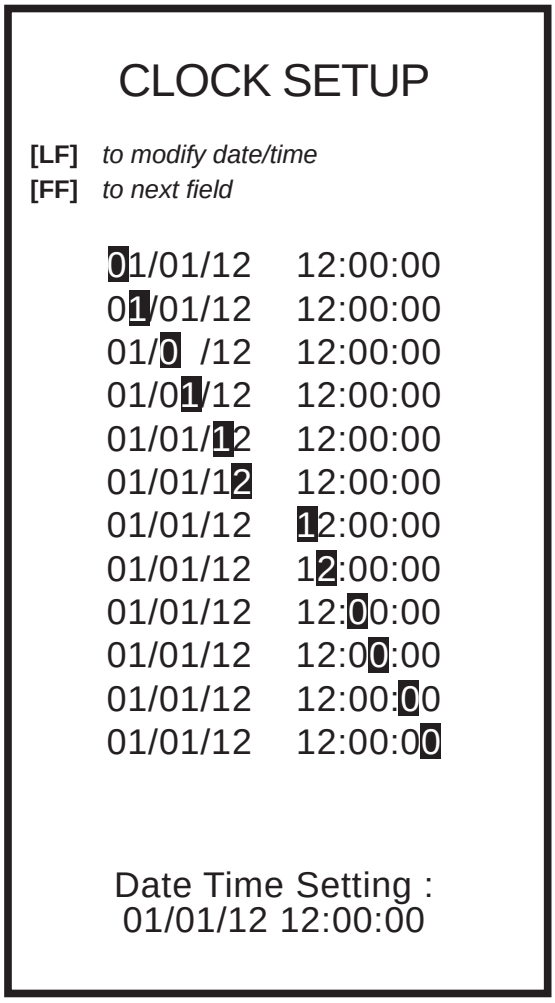
5.5 Hexadecimal dump

This function is used to diagnose the characters received through the communication port; the characters are printed out both as hexadecimal codes and ASCII codes.
Once the self-test routine has finished, the printer enters Hexadecimal Dump mode. The printer remains in standby until a key is pressed or characters are received through the communication port. For example, for every 8 characters received, the hexadecimal and corresponding ASCII codes are printed out (if the characters are underlined, the receive buffer is full). Shown below is an example of a Hexadecimal Dump:

48	65	78	61	64	65	63	69	Hexadeci
6D	61	6C	20	64	75	6D	70	mal dump
20	66	75	6E	63	74	69	6F	functio
6E	20	30	31	32	33	34	35	n 012345
36	37	38	39	61	62	63	64	6789abcd
65	66	67	68	69	6A	6B	6C	efghijkl
6D	6E	6F	70	71	72	73	74	mnopqrst
75	76	77	78	79	7A			uvwxyz

5.6 Calendar clock

The printer is equipped with a Real Time Clock. During power-up, held down the LINE FEED key to enter in the printer configuration mode.
Pressing both the LF and FF keys to enter in the clock configuration (see following figure).
Pressing the LINE FEED key to modify date / time; the printer will be print the upated the date and time.
Follow the instructions printed on the paper for the key functionality. The highlighted digit (the number is written in negative mode) indicates the digit to be modified. Pressing LINE FEED key to modify the value of the highlighted digit; every single LINE FEED key pressure increases of 1 his value. Once the value 9 is reached the counting starts again from 0.
Pressing FORM FEED key to move the cursor on the next digit; if the cursor position is on the latest digit you can proceed to next parameter pressing the FORM FEED key again.

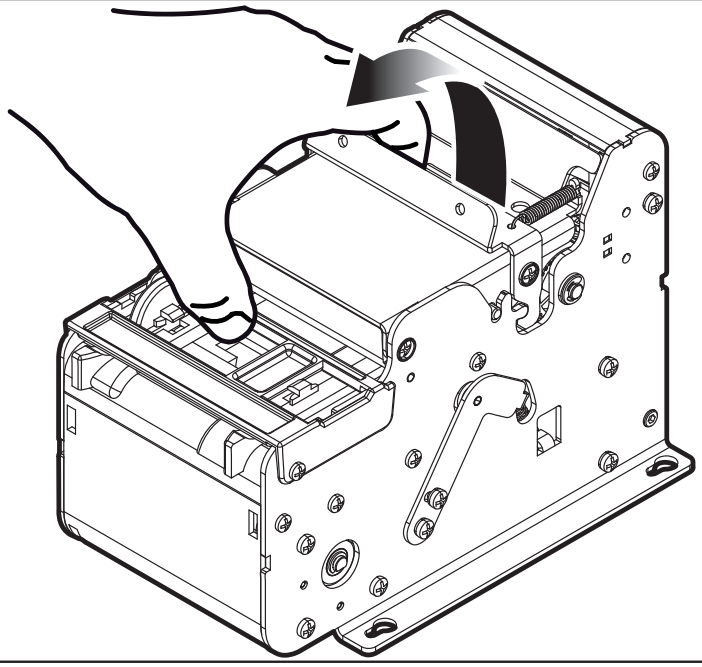


6 MAINTENANCE

6.1 Paper jam

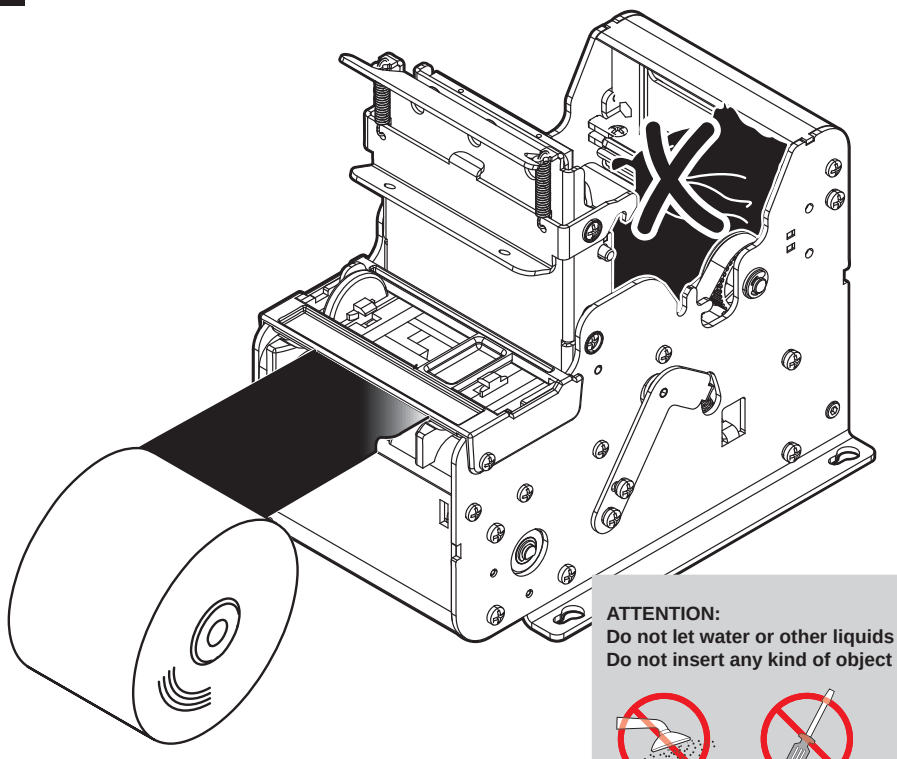
In case of paper jam proceed as follows:

1



Open the printer cover.

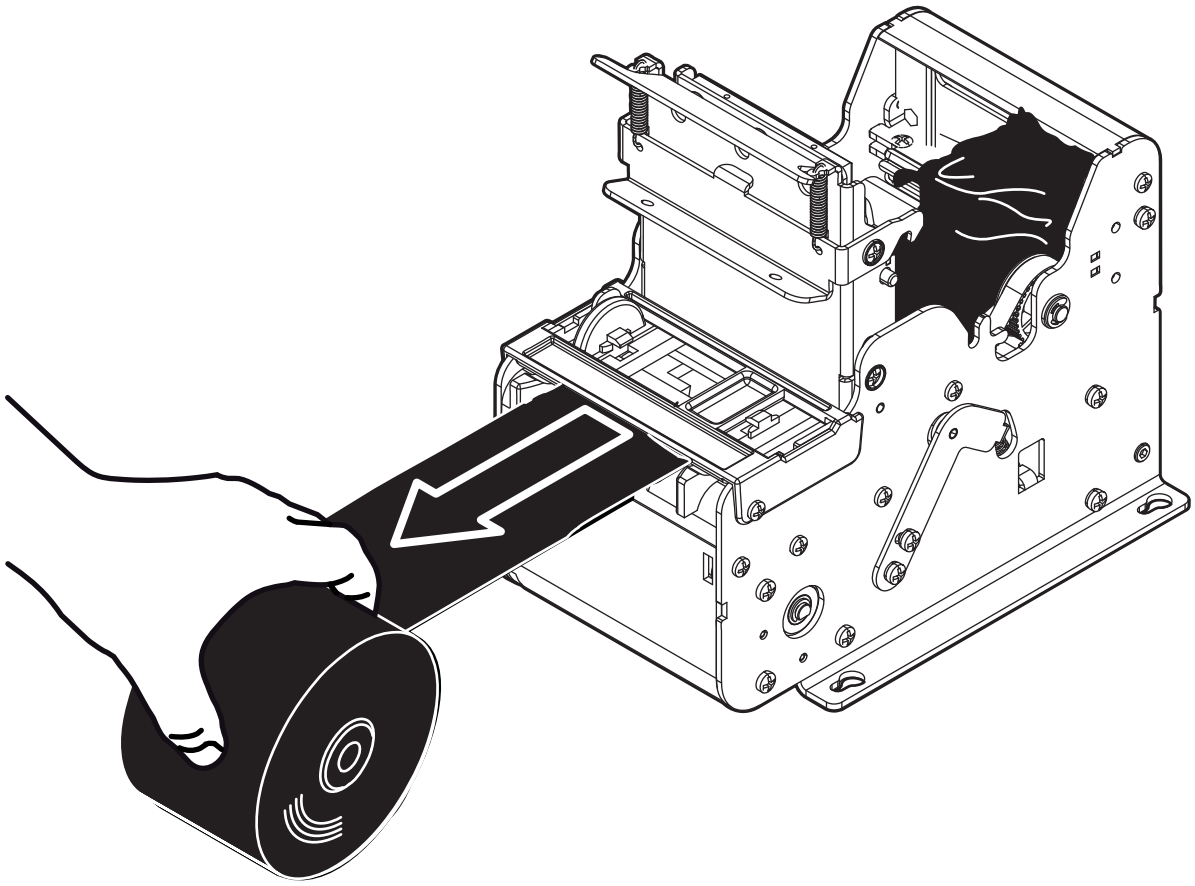
2



ATTENTION:
Do not let water or other liquids get inside the machine.
Do not insert any kind of object inside the cutter.

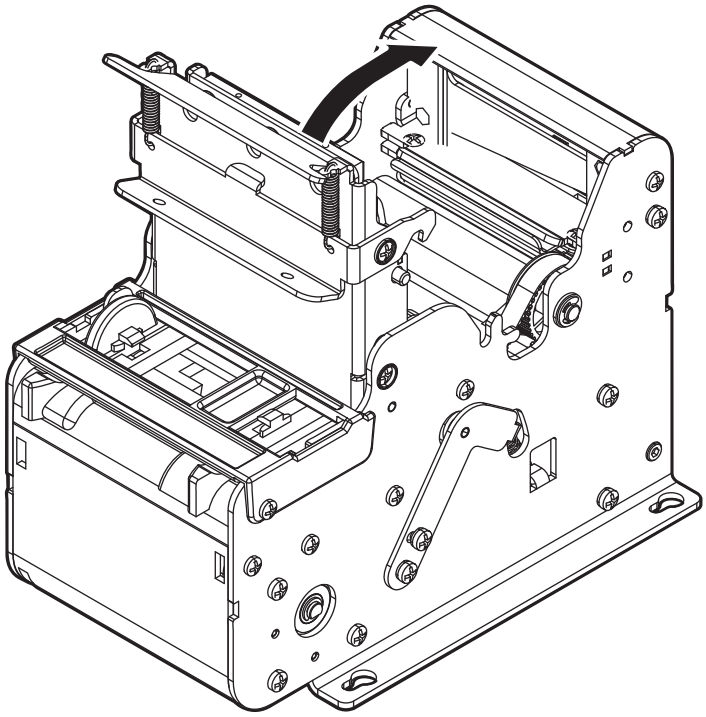
Remove the damaged paper and check the presence for paper scraps in the printer.

3



Remove the paper from the paper infeed.

4



Close the printer cover and insert a not damaged paper roll
following instructions of “Changing the paper roll” paragraph (see previous paragraphs).

6.2 Planning of cleaning operations

The regular cleaning of the device keeps the print quality and extends its life. The following table shows the recommended planning for the cleaning operations.

EVERY PAPER CHANGE	
Printing head	Use isopropyl alcohol
Printing roll	Use isopropyl alcohol
EVERY 5 PAPER CHANGES *	
Cutter	Use compressed air
Paper path	Use compressed air or tweezers
Sensors	Use compressed air
EVERY 6 MONTHS OR AS NEEDED *	
Case	Use compressed air or a soft cloth

For specific procedures, see the following pages.

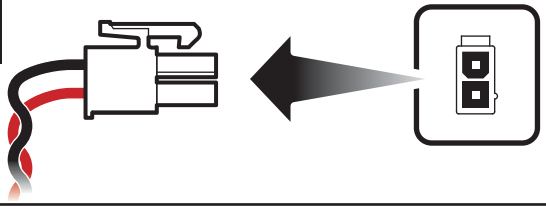
NOTE:
If you use the device in dusty environments, you must reduce the intervals between the cleaning operations.

6.3 Cleaning

For periodic cleaning of the printer, see the instructions below.

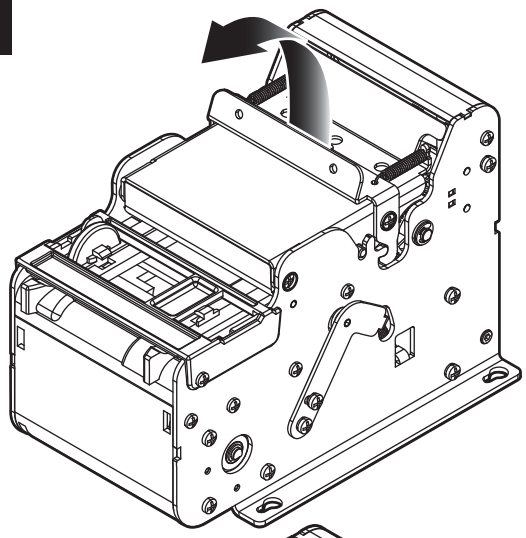
PRINTING HEAD

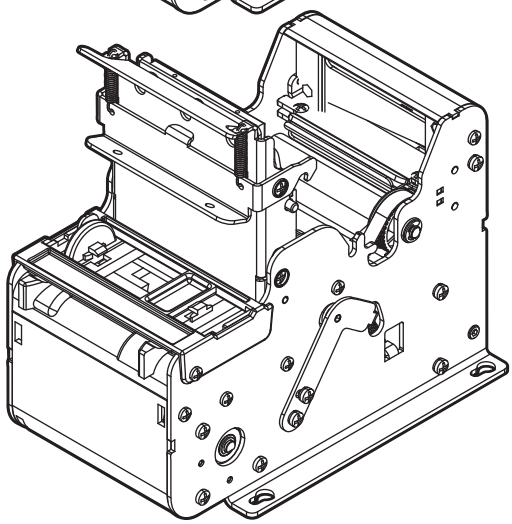
1



Disconnect the power supply cable.

2

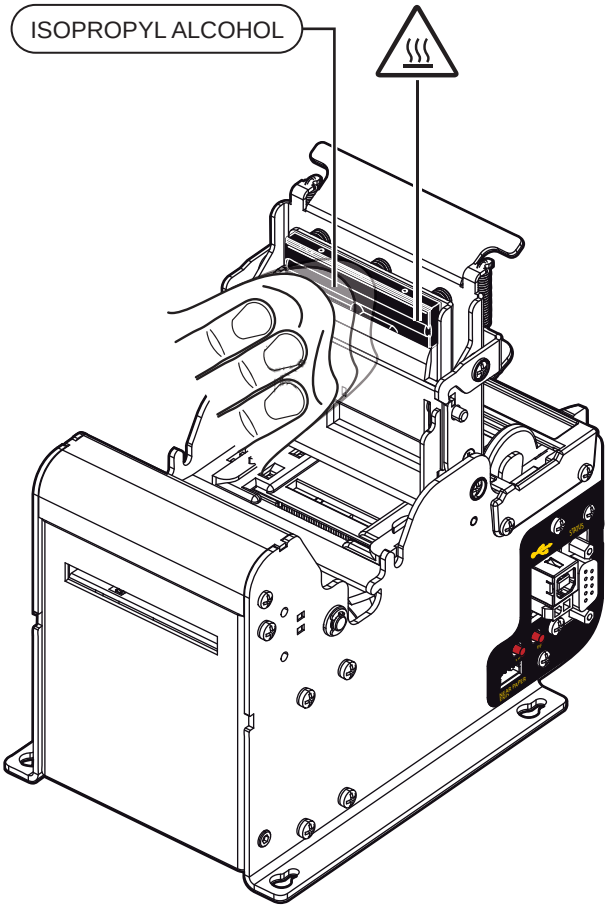




ATTENTION:
Do not touch the head heating line with bare hands or metal objects.
Do not perform any operation inside the printer immediately after printing because the head and motor tend to become very hot.

Open the printer cover
to the vertical up position.

3

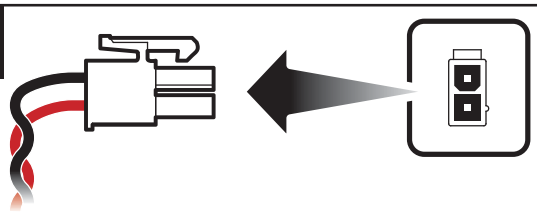


ATTENTION:
Do not use solvents, or hard brushes.
Do not let water or other liquids get inside the machine.

Clean the printing head by using
a non-abrasive cloth moistened with isopropyl.

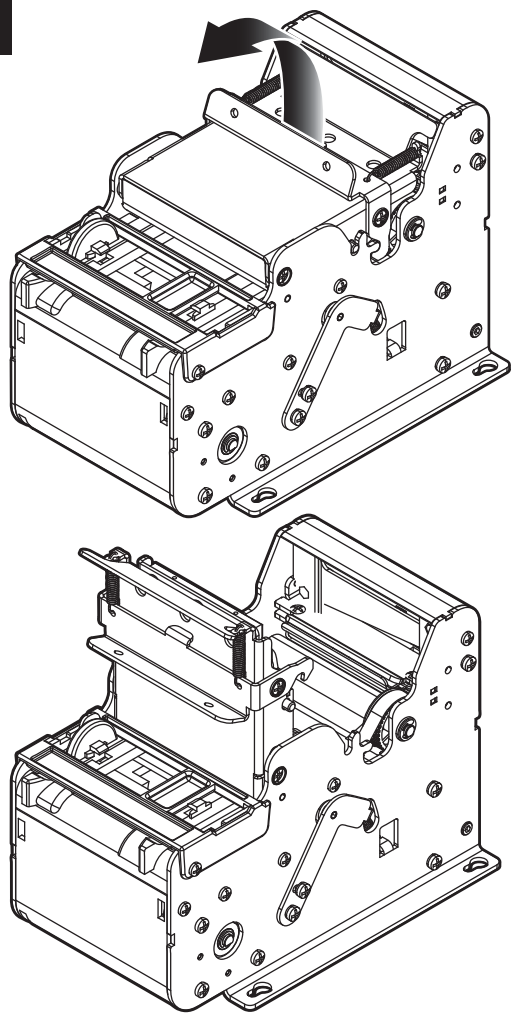
CUTTER

1



Disconnect the power supply cable.

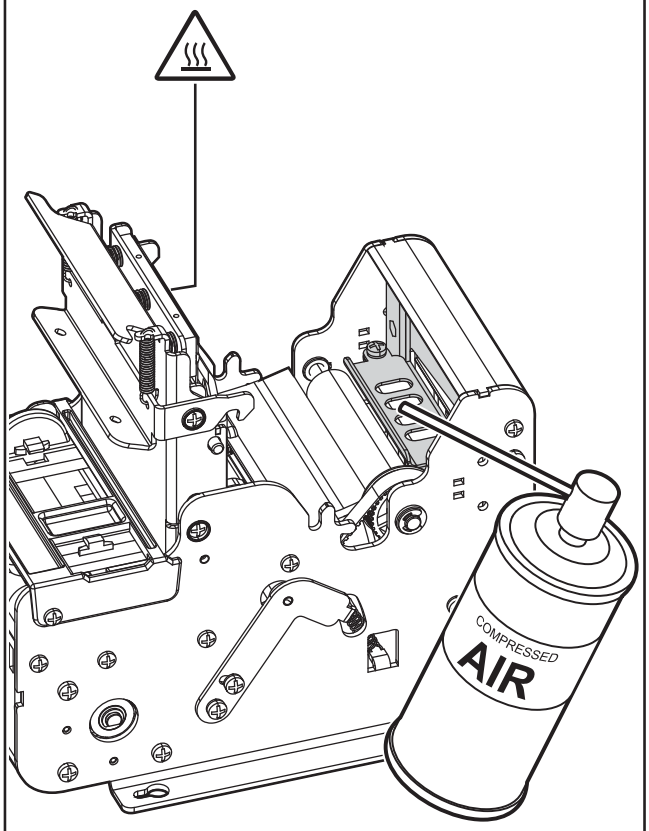
2



ATTENTION:
Do not touch the head heating line with bare hands or metal objects.
Do not perform any operation inside the printer immediately after printing because the head and motor tend to become very hot.

Open the printer cover
to the vertical up position.

3

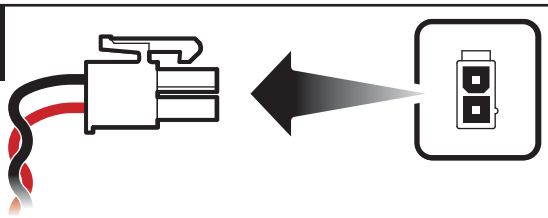


ATTENTION:
Do not use alcohol, solvents, or hard brushes.
Do not let water or other liquids get inside the machine.

Clean the cutter
by using compressed air.

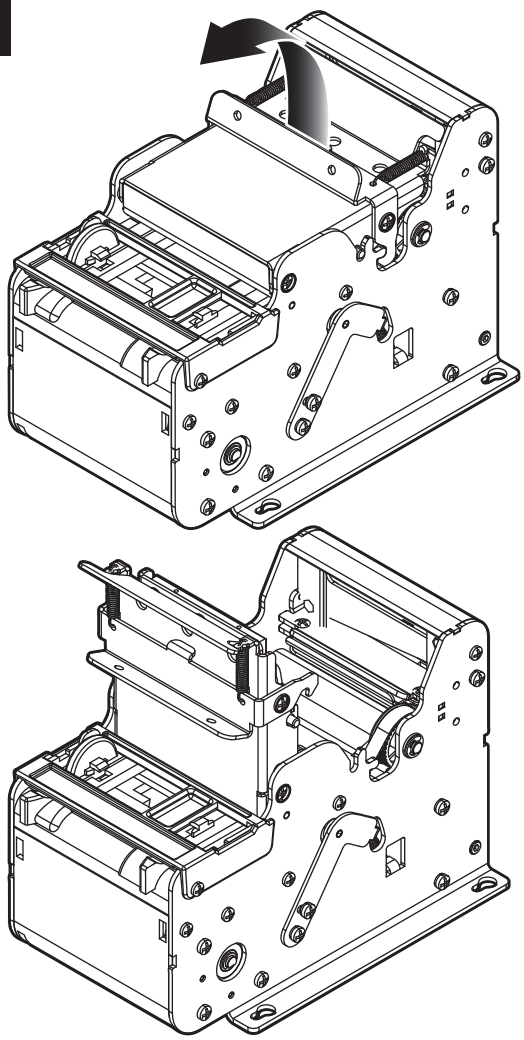
PRINTING ROLL

1



Disconnect the power supply cable.

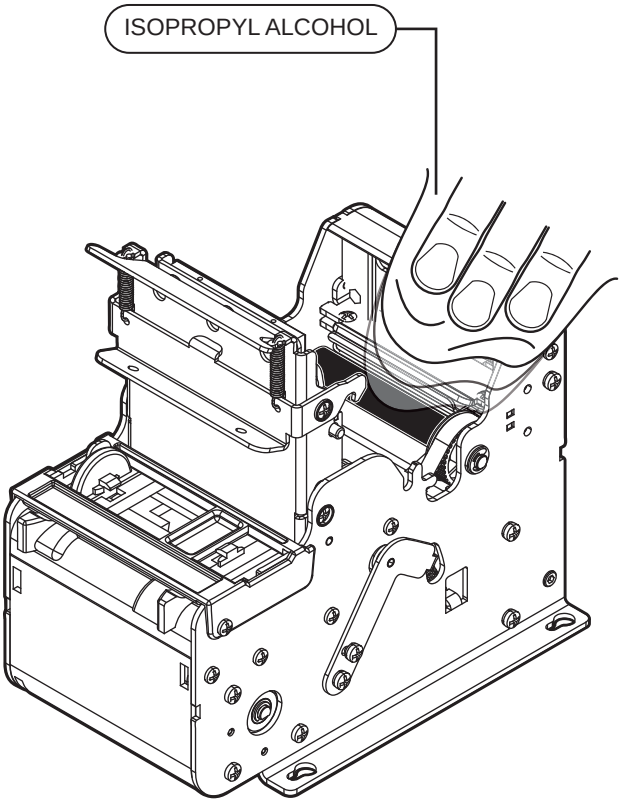
2



ATTENTION:
Do not touch the head heating line with bare hands or metal objects.
Do not perform any operation inside the printer immediately after printing because the head and motor tend to become very hot.

Open the printer cover
to the vertical up position.

3

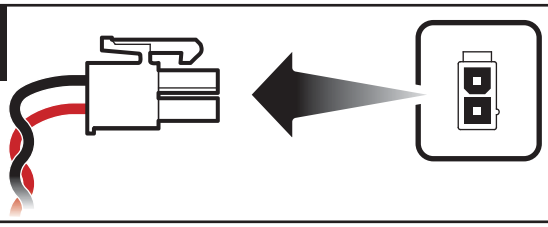


ATTENTION:
Do not use solvents, or hard brushes.
Do not let water or other liquids get inside the machine.

Clean the printing roll by using
a non-abrasive cloth moistened with isopropyl.

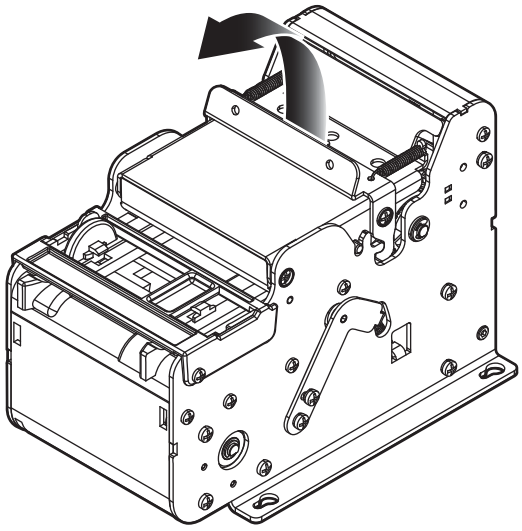
SENSORS

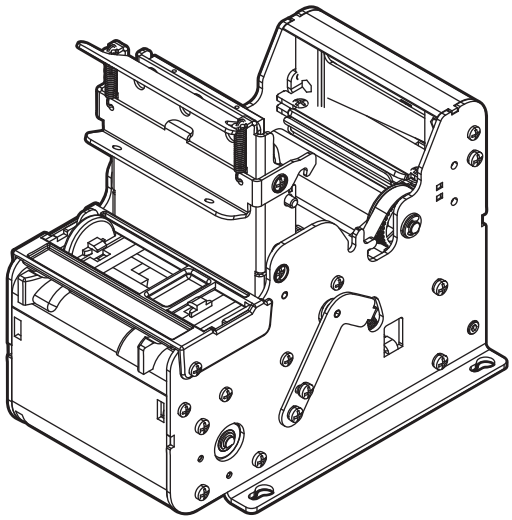
1



Disconnect the power supply cable.

2

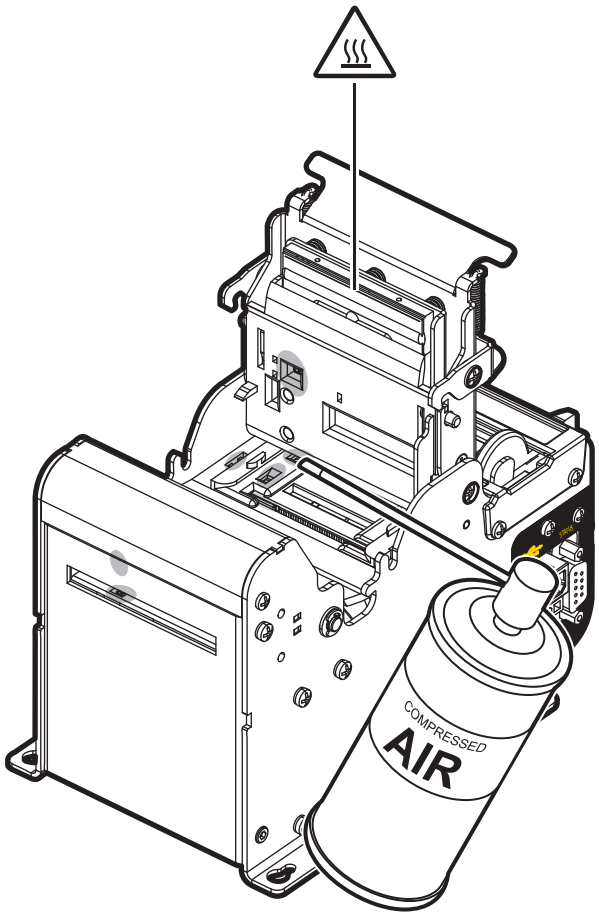




ATTENTION:
Do not touch the head heating line with bare hands or metal objects.
Do not perform any operation inside the printer immediately after printing because the head and motor tend to become very hot.

Open the printer cover
to the vertical up position.

3

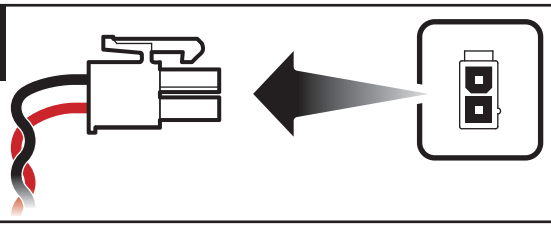


ATTENTION:
Do not use alcohol, solvents, or hard brushes.
Do not let water or other liquids get inside the machine.

Clean the printer sensors
by using compressed air.

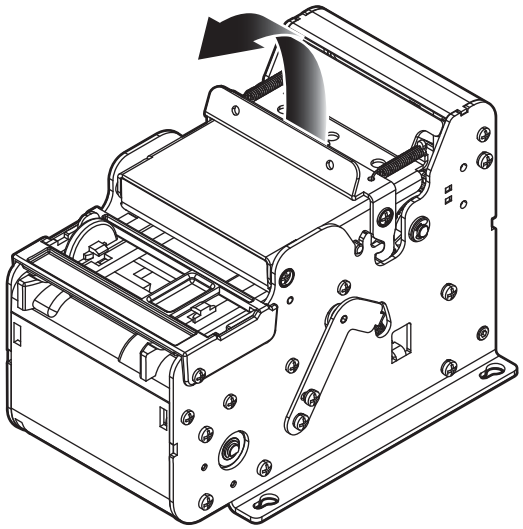
PAPER PATH

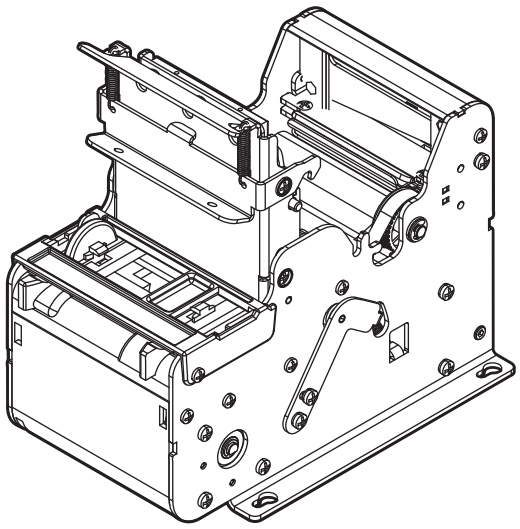
1



Disconnect the power supply cable.

2

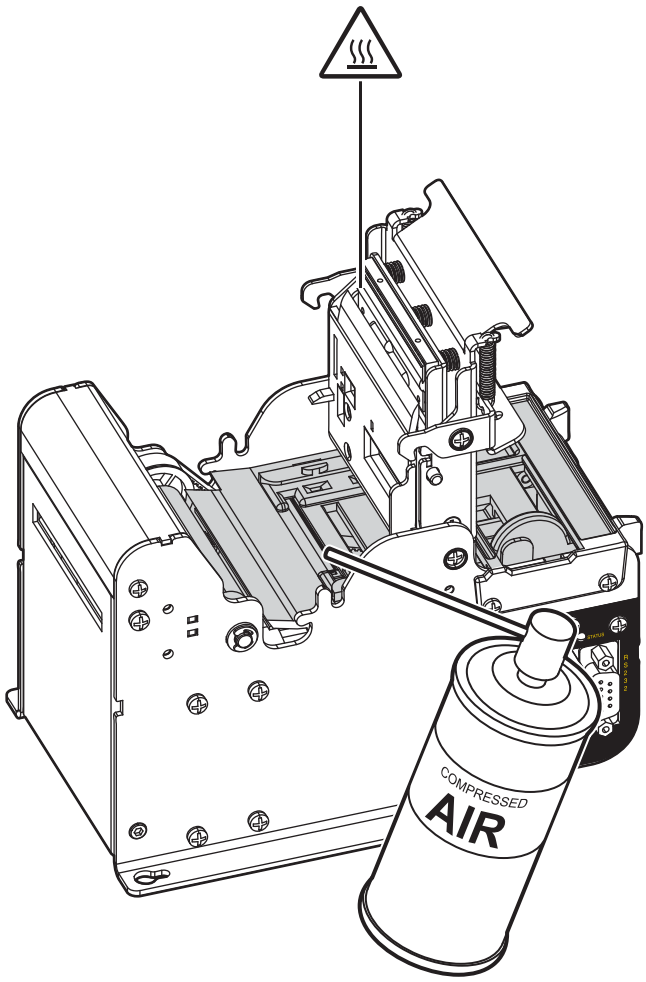




ATTENTION:
Do not touch the head heating line with bare hands or metal objects.
Do not perform any operation inside the printer immediately after printing because the head and motor tend to become very hot.

Open the printer cover
to the vertical up position.

3

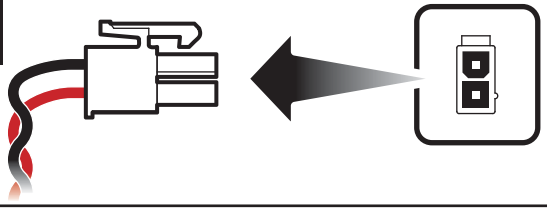


ATTENTION:
Do not use alcohol, solvents, or hard brushes.
Do not let water or other liquids get inside the machine.

Clean the area involved in the passage of paper
by using compressed air.

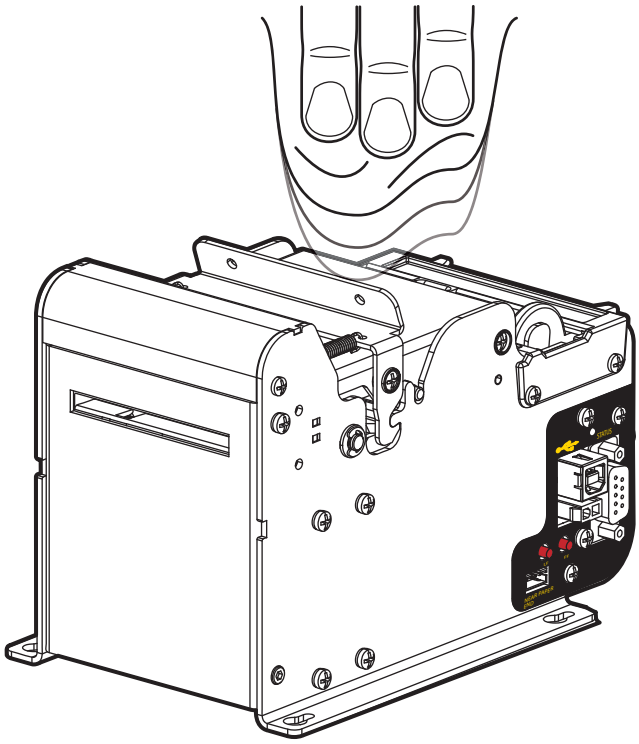
CASE

1



Disconnect the power supply cable.

2



ATTENTION:
Do not use alcohol, solvents, or hard brushes.
Do not let water or other liquids get inside the machine.

To clean the device,
use compressed air or a soft cloth.

6.4 Firmware upgrade

WARNING: During communication between PC/ printer for the firmware update it is strictly forbidden to disconnect the communication cable or to remove the power supply of the devices not to endanger the proper functioning of the printer.

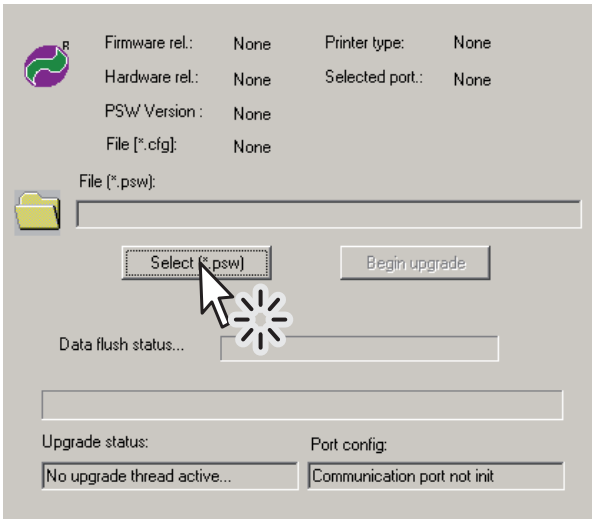
Note: The latest firmware of the printer is available in the download area of the web site www.custom.biz.

Note: Install on the PC used for printer upgrading the UPGCEPRN software available in the download area of the web site www.custom.biz.

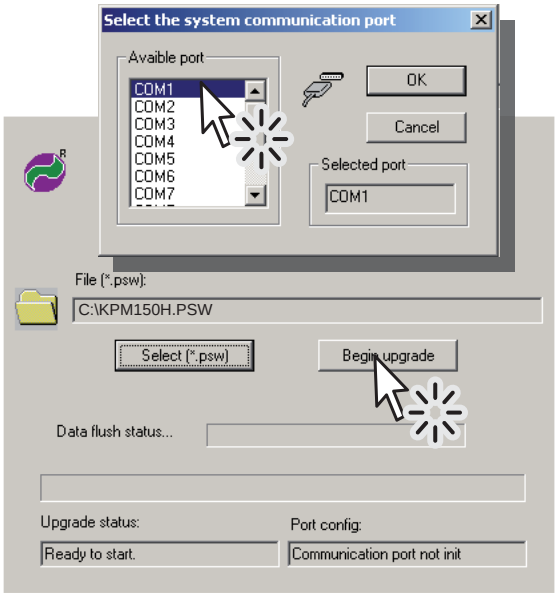
UPDATE VIA SERIAL INTERFACE

Proceed as follows:

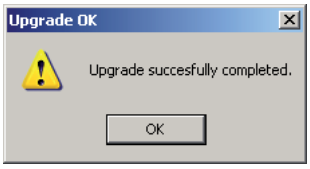
1. Print the SETUP report (see chapter 5).
2. Switch off the printer.
3. Connect the printer to the PC using a serial cable (see paragraph 3.2).
4. Switch ON the printer.
5. Start the software UPGCEPRN.
6. Select the update file .PSW location :



7. Select the serial communication port (ex. COM1):



8. Detecting and setting of the parameters necessary for serial communication are performed automatically and then updating begins.
9. After a few minutes a message on the screen warns that the update is completed.



10. Print a new SETUP report to verify the new firmware release (see chapter 5).

UPDATE VIA USB INTERFACE

WARNING: Only during the firmware update, the connection between PC and printer must be direct, without the use of wireless HUB.

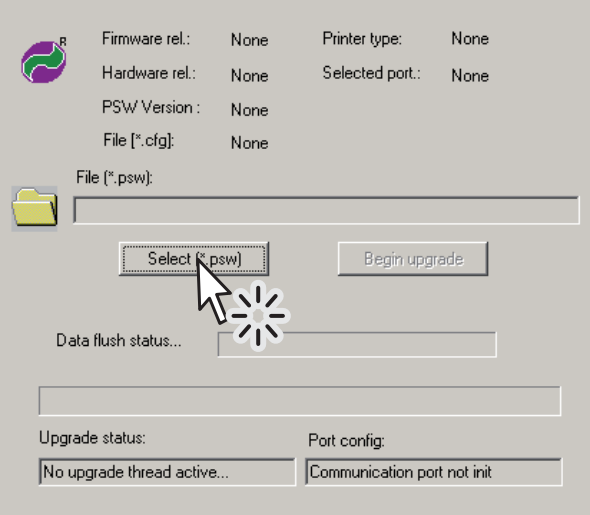
WARNING: Only during the firmware update, do not connect or disconnect other USB devices.

Note: For communication via USB you must install on PC the printer driver available in the download area of the web site www.custom.biz.

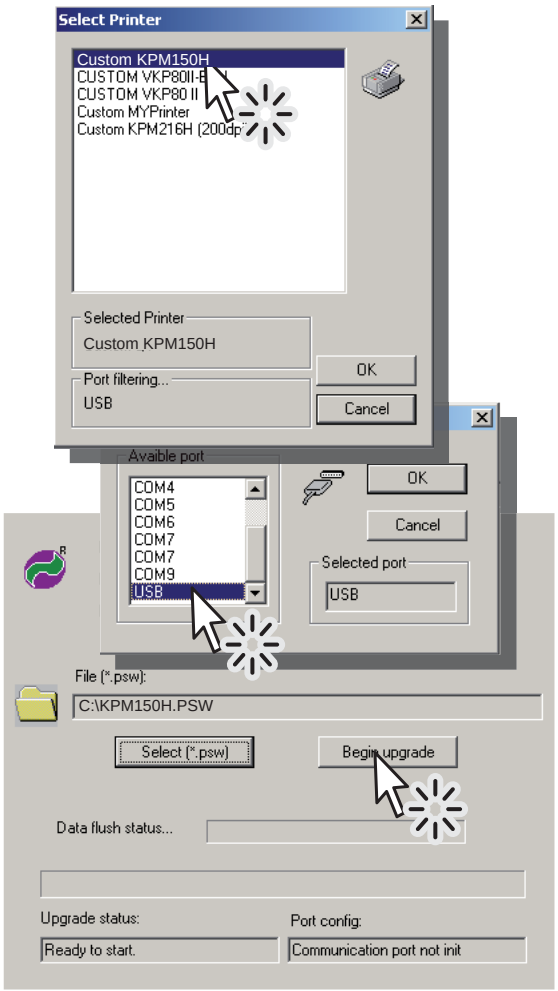
Proceed as follows:

1. Print the SETUP report (see chapter 5).
2. Switch OFF the printer.

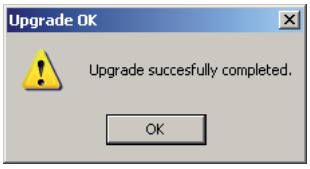
3. Connect the printer to the PC using a USB cable (see paragraph 3.3).
4. Switch ON the printer.
5. Start the software UPGCEPRN.
6. Select the update file .PSW location :



7. Select item USB and then select the USB device among those proposed (ex.KPM150H):



8. After a few minutes a message on the screen warns that the update is completed.



9. Print a new SETUP report to verify the new firmware release (see chapter 5).

7 SPECIFICATIONS

7.1 Hardware specifications

GENERAL	
Sensors	Ticket presence, head temperature, notch detector in 3 positions, translucent gap/hole detector (setting by software), ticket presence on output, cover open, external near paper end.
MTBF (1)	89 165 hours
Noise level	68,5 dB
Emulations	ESC/POS™, SVELTA
Printing Driver	Windows XP, VISTA (32/64bit), Windows 7 (32/64bit)
INTERFACES	
USB connector	12 Mbit/sec
RS232 serial connector	from 1200 to 115 200 bps
MEMORIES	
Receive buffer	64 Kbytes
Flash memory	32 Mbytes
Graphic memory	Logos dynamic management (max 2MB graphic memory)
Memory Card SD/MMC (2)	Capacity = max 2 Gbytes
PRINTER	
Resolution	203 dpi (8 dot/mm)
Printing method	Thermal, fixed head (8 dot/mm)
Head life (3)	100 Km / 100M pulses
Printing mode	Normal, 90°, 180°, 270°
Printing format	Height/Width from 1 to 8, bold, reverse, underlined, italic
Character font ESC/POS™ emulation	PC437, PC850, PC860, PC863, PC865, PC858 (euro), 2 TrueType fonts (4)
Character font (5) ESC/POS™ emulation (models with simplified chinese font)	PC437, GB2312, 2 TrueType fonts (4)
Character font (5) ESC/POS™ emulation (models with traditional chinese font)	PC437, BIG5, 2 TrueType fonts (4)
Character font (5) ESC/POS™ emulation (models with extended chinese font)	PC437, GB18030-2000, 2 TrueType fonts (4)
Character font SVELTA emulation	20 embedded fonts and 2 TrueType fonts (4)
Printable Barcode	UPCA, UPCE, EAN13, EAN8, CODE39, ITF, CODABAR, CODE93, CODE128, CODE32, PDF417, DATAMATRIX, AZTEC, QRCODE
Printing speed (3) (6)	High quality = 80 mm/sec Normal = 117 mm/sec High speed = 167 mm/sec

PAPER	
Type of paper	Thermal rolls, heat-sensitive side on outside of roll Fan Fold thermal paper with notch
Paper width	from 20mm to 54mm (2mm step) 54mm (according to IATA BTP specifications - resolution 740)
Paper weight	from 80 g/m^2 to 180 g/m^2
Recommended paper	KANZAN KPO 460 and KP415 MITSUBISHI TL1767 and TL4000
External roll diameter (7)	max Ø200 mm
Internal roll core diameter	min 50 mm (+1 mm)
Core thickness	2 mm (+1 mm)
Paper end	Not attached to roll core
Core type	Cardboard or plastic
Minimum ticket length (8)	60 mm
CUTTER	
Paper cut	Total
Estimated life (3)	1 000 000 cutter number
KPM150H ELECTRICAL SPECIFICATIONS	
Power supply	24 Vdc ± 10%
Medium consumption (6)	0,9 A
Standby consumption	0,09 A
POWER SUPPLY ELECTRICAL SPECIFICATIONS (cod.963GE020000003 - OPTIONAL)	
Power supply voltage	from 90 Vac to 264 Vac
Frequence	from 47 Hz to 63 Hz
Current (output)	2,5 A
Power	60 W
ENVIRONMENTAL CONDITIONS	
Operating temperature	from 0°C to 50°C
Relative humidity	from 10% to 85% (w/o condensation)
Storage temperature	from -20°C to +70°C
Storage humidity	from 10% to 90%

NOTES

(1) : Electronic board.
(2) : Only for printer models equipped with SD/MMC.
(3) : Respecting the regular schedule of cleaning for the device components.
(4) : “Veramono.ttf” and “Mono.ttf” are installed on printer flash disk. It is possible to install additional TrueType fonts (see par. FONT MANAGEMENT).
(5) : For further information refer to the command manual for managing chinese fonts.
(6) : Referred to a standard CUSTOM receipt (L=10cm, Density = 12,5% dots on).
(7) : For external rolls diameter higher to Ø100mm it’s recommended to use a paper pretensioning device.
(8) : Referred to model without stop device ticket. With this accessory installed is 75 mm.

7.2 Character specifications

ESC/POS™ EMULATION			
Character set		3	
Character density	11 cpi	15 cpi	20 cpi
Number of columns	35	45	64
Chars / sec	2900	3800	5300
Lines / sec	83	83	83
Characters (L x H mm)-Normal	2,25 x 3	1,75 x 3	1,25 x 3

7.3 Specifications for RFID reader/writer

TRANSPONDER SPECIFICATIONS (1)	
Supported transponders	IATA RP1740C ISO 18000-6C

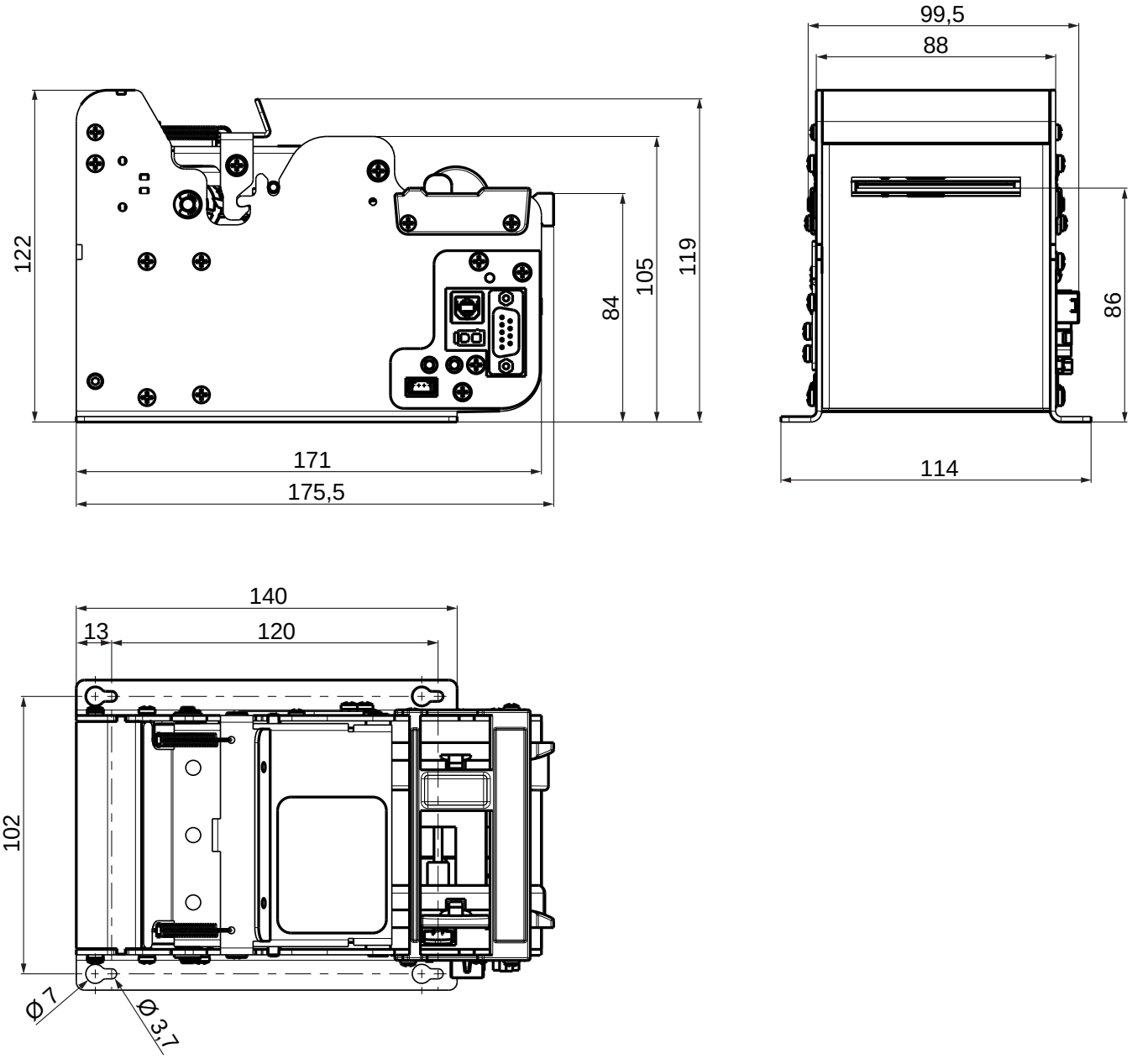
NOTE
(1) : Only for models with RFID reader/writer (UHF).

7.4 Printer dimensions

MECHANICAL SPECIFICATIONS	
Length	171 mm
Height	122 mm *(with printer cover closed)*
Width	114 mm
Weight	1850 g

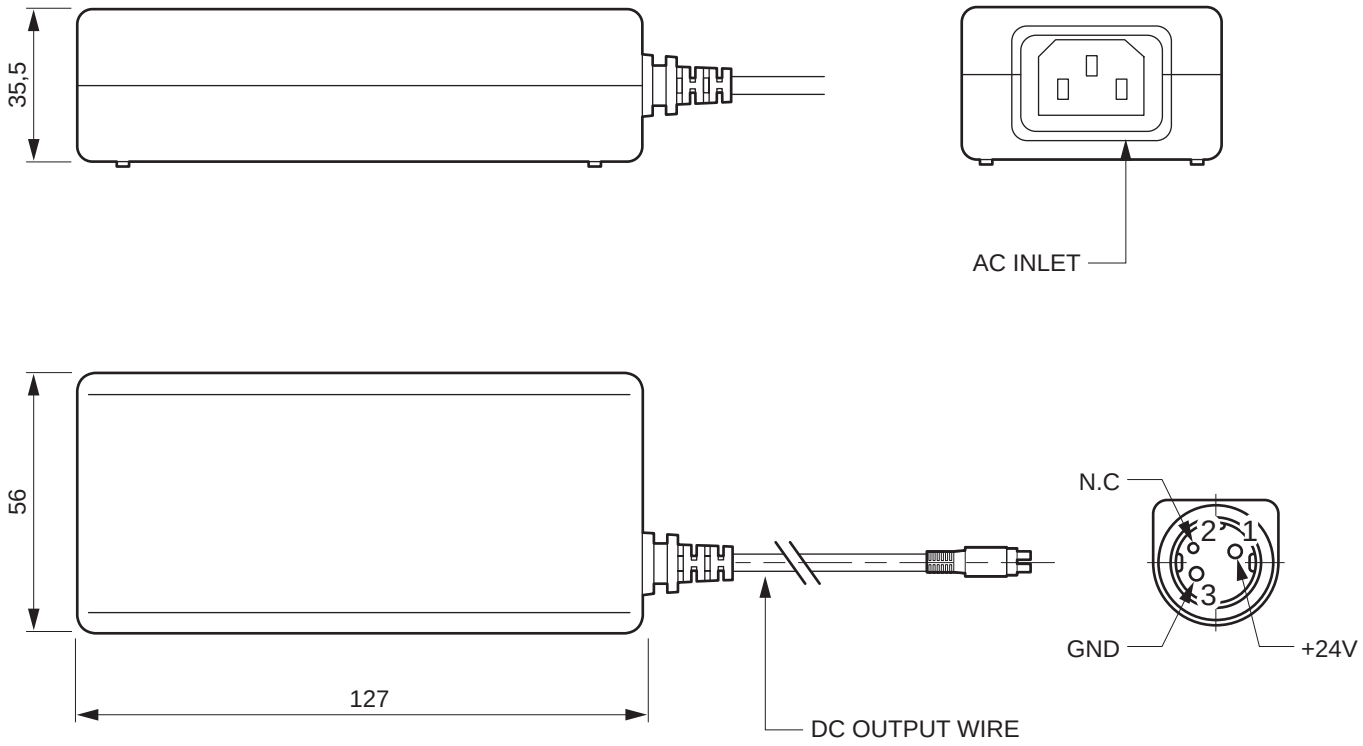
NOTE
Referred to model without paper roll and in the STANDARD configuration.

The following figure shows the dimensions of the printer (dimensions in mm).



7.5 Power supply dimensions cod. 963GE020000003 (optional)

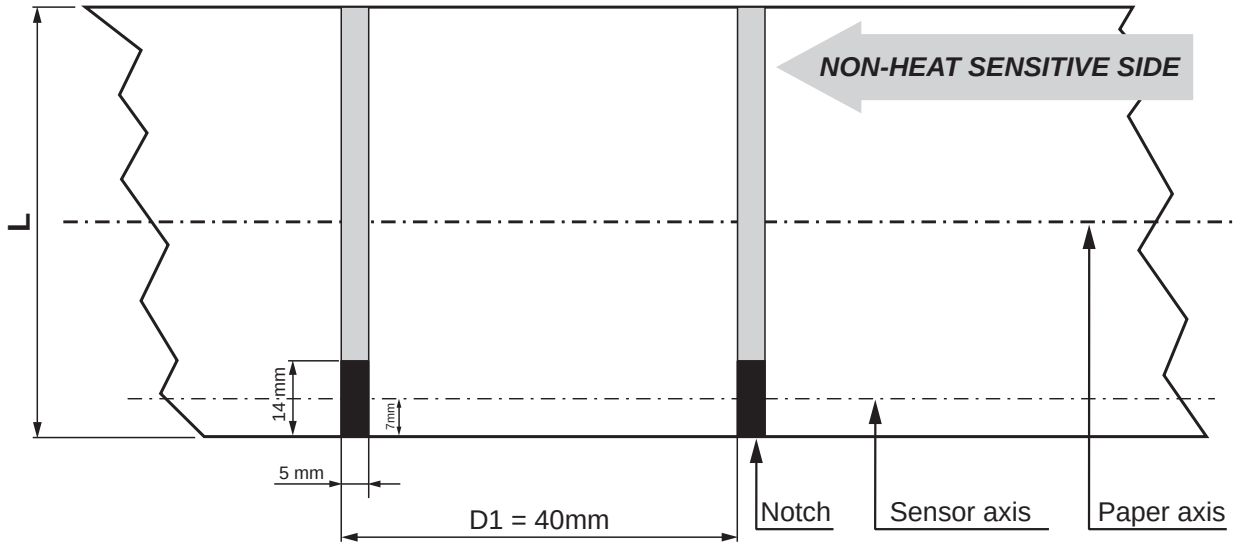
Length	127 mm
Height	35,5 mm
Width	56 mm



7.6 Specifications for ticket with notch

PAPER WITH ALIGNMENT NOTCH ON THE NON-HEAT SENSITIVE SIDE

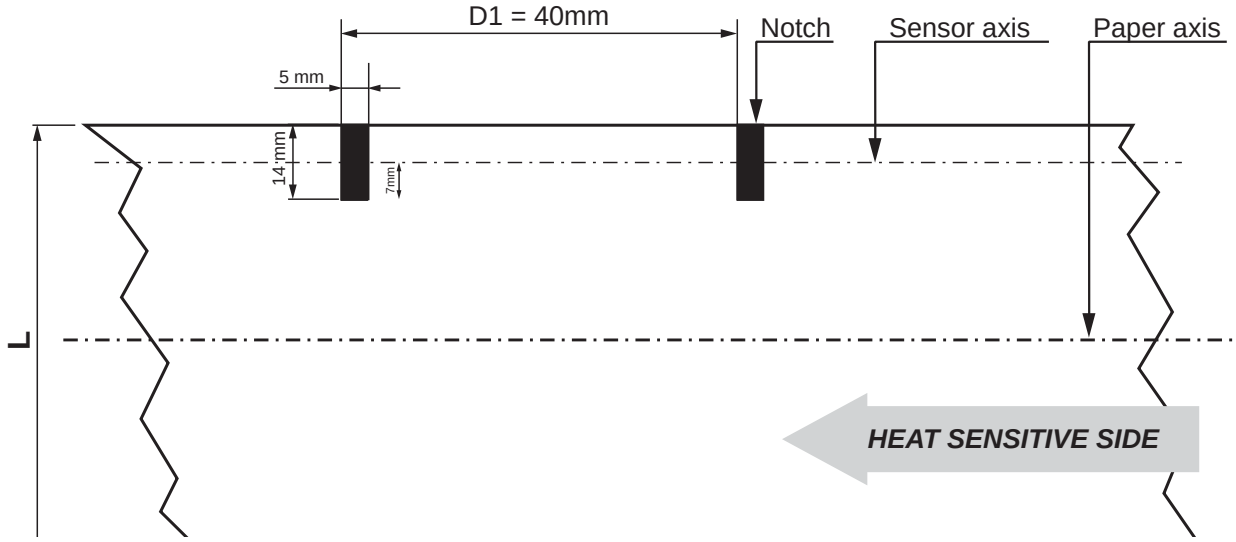
The following figure shows a sample paper with alignment notch placed on the non-heat sensitive side of paper. The notch can be positioned anywhere across the width of the paper, because the notch detector is a mobile sensor.



L = represents the paper width used (from 20mm to 54 mm);
D1 = indicates the notch to notch distance

PAPER WITH ALIGNMENT NOTCH ON THE HEAT SENSITIVE SIDE

The following figure shows a sample paper with alignment notch placed on the heat sensitive side of paper. This sample paper is for the printer models with the upper notch detector

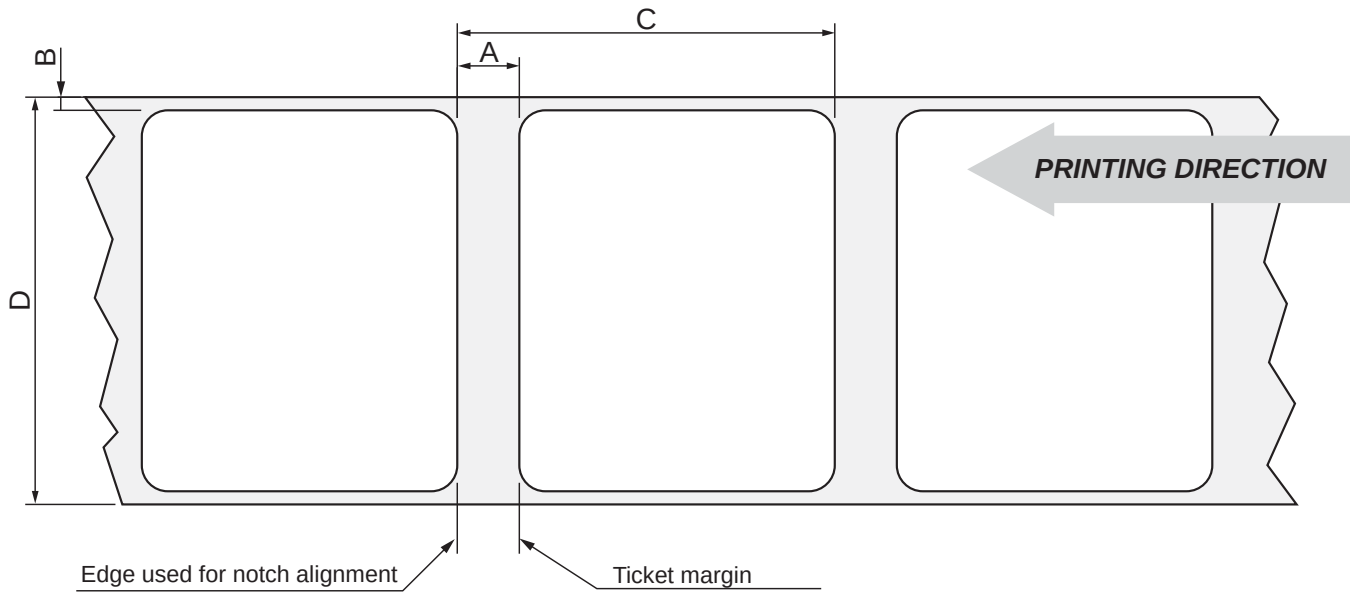


L = represents the paper width used (from 20mm to 54 mm);
D1 = indicates the notch to notch distance

- The printer automatically choice the sensor used to detect the paper presence according to the selected notch sensor.

7.7 Specifications for ticket with labels

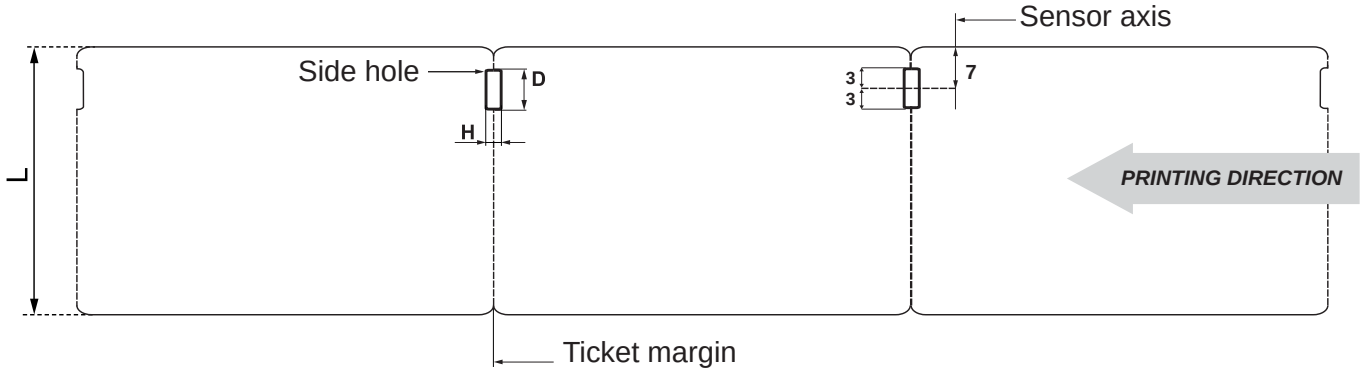
Paper with labels is managed by setting the “Ticket Management” parameter to “Short Label” value (see chapter 10). The following figure shows an example of paper with labels:



where
D = width of paper used (from 20mm to 54mm).
A = space between two labels (A ≥ 3mm)
B = distance from the edge (B ≤ 2mm)
C = the minimum managed length = 40mm (C ≥ 40mm).

7.8 Specifications for ticket with hole

The printer manages tickets with lateral gap. Set the “Notch position” parameter (see printer setup) with “Transparent” value for print and cut the ticket. The following figure shows an example for ticket with lateral gap.



where
L = width of paper used (from 20mm to 54mm).
H = minimum height of hole (2mm)
D = minimum width of hole (10mm)

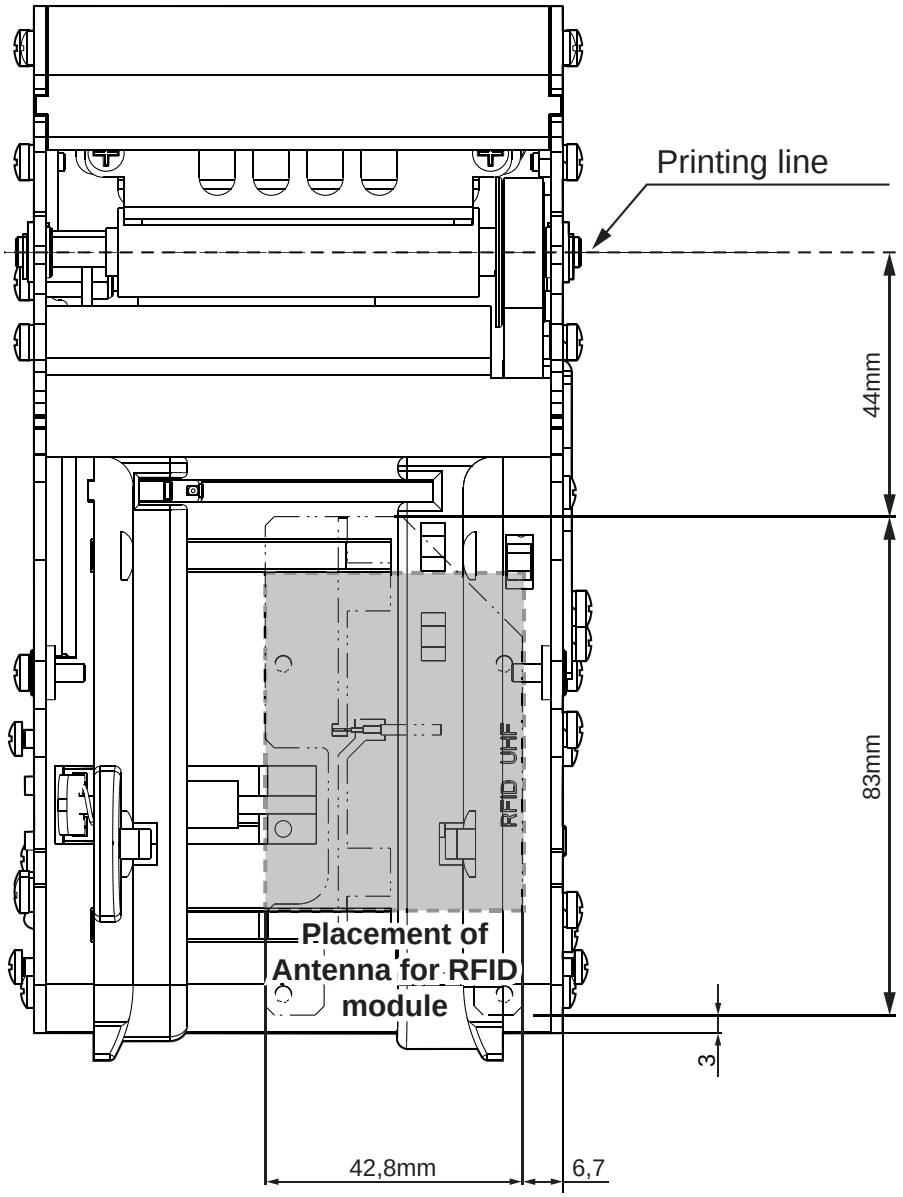
NOTE: The valid format of the ticket is ISO size 54 x 85mm

7.9 Specifications for ticket with RFID Tag (for models with RFID reader)

The printer models equiped with RFID reader, manages ticket with RFID Tag. RFID (acronym for Radio Frequency IDentification) is a technology to identify automatically items using radio waves; this system is based on wireless data capture from RFID tag using appropriate readers. The RFID tag, or transponder, is made up of :

- the microchip that stores the data (including also a unique serial number written);
- an RFID antenna.

Under the paper guide an RFID transceiver module is mounted, provided with antenna, that allows to send and receive RF data to and from the tag. For this application the ticket dimensions are not binding but for good reading is important that the tag inside the ticket, after alignment, intersects the antenna area. The following figure shows the antenna's area and its position under the paper guide in the RFID printer model.



7.10 Character sets in ESC/POS™ emulation

The printer has 3 embedded fonts of varying width: 11, 15, 20 cpi which may be accessed through programming or control characters.
Each of these fonts offers the following code tables: PC437, PC850, PC860, PC863, PC865, PC858.

PC437 CODE TABLE (Usa, Standard Europe)

Char	SP	!	“	#	$	%	&	‘	(	)	*	+	,	-	.	/
Hex	0020	0021	0022	0023	0024	0025	0026	0027	0028	0029	002A	002B	002C	002D	002E	002F
Dec	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
Char	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
Hex	0030	0031	0032	0033	0034	0035	0036	0037	0038	0039	003A	003B	003C	003D	003E	003F
Dec	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
Char	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Hex	0040	0041	0042	0043	0044	0045	0046	0047	0048	0049	004A	004B	004C	004D	004E	004F
Dec	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
Char	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
Hex	0050	0051	0052	0053	0054	0055	0056	0057	0058	0059	005A	005B	005C	005D	005E	005F
Dec	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
Char	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
Hex	0060	0061	0062	0063	0064	0065	0066	0067	0068	0069	006A	006B	006C	006D	006E	006F
Dec	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
Char	p	q	r	s	t	u	v	w	x	y	z	{	|	}	~	⌂
Hex	0070	0071	0072	0073	0074	0075	0076	0077	0078	0079	007A	007B	007C	007D	007E	007F
Dec	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
Char	Ç	ü	é	â	ä	à	å	ç	ê	ë	è	ï	î	ì	Ä	Å
Hex	0080	0081	0082	0083	0084	0085	0086	0087	0088	0089	008A	008B	008C	008D	008E	008F
Dec	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
Char	É	æ	Æ	ô	ö	ò	û	ù	ÿ	Ö	Ü	¢	£	¥	Pts	ƒ
Hex	0090	0091	0092	0093	0094	0095	0096	0097	0098	0099	009A	009B	009C	009D	009E	009F
Dec	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
Char	á	í	ó	ú	ñ	Ñ	ª	º	¿	⌐	¬	½	¼	¡	«	»
Hex	00A0	00A1	00A2	00A3	00A4	00A5	00A6	00A7	00A8	00A9	00AA	00AB	00AC	00AD	00AE	00AF
Dec	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
Char	░	▒	▓	│	┤	╡	╢	╖	╕	╣	║	╗	╝	╜	╛	┐
Hex	00B0	00B1	00B2	00B3	00B4	00B5	00B6	00B7	00B8	00B9	00BA	00BB	00BC	00BD	00BE	00BF
Dec	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
Char	└	┴	┬	├	─	┼	╞	╟	╚	╔	╩	╦	╠	═	╬	╧
Hex	00C0	00C1	00C2	00C3	00C4	00C5	00C6	00C7	00C8	00C9	00CA	00CB	00CC	00CD	00CE	00CF
Dec	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
Char	╨	╤	╥	╙	╘	╒	╓	╫	╪	┘	┌	▉	▄	▌	▐	▀
Hex	00D0	00D1	00D2	00D3	00D4	00D5	00D6	00D7	00D8	00D9	00DA	00DB	00DC	00DD	00DE	00DF
Dec	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
Char	α	ß	Γ	π	Σ	σ	µ	τ	Φ	Θ	Ω	δ	∞	φ	ε	∩
Hex	00E0	00E1	00E2	00E3	00E4	00E5	00E6	00E7	00E8	00E9	00EA	00EB	00EC	00ED	00EE	00EF
Dec	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
Char	≡	±	≥	≤	⌠	⌡	÷	≈	°	∙	·	√	n	²	■	NBSP
Hex	00F0	00F1	00F2	00F3	00F4	00F5	00F6	00F7	00F8	00F9	00FA	00FB	00FC	00FD	00FE	00FF
Dec	240	241	242	243	244	245	246	247	248	249	250	251	252	253	251	255

PC850 CODE TABLE (Multilingual)

Char	SP	!	“	#	$	%	&	‘	(	)	*	+	,	-	.	/
Hex	0020	0021	0022	0023	0024	0025	0026	0027	0028	0029	002A	002B	002C	002D	002E	002F
Dec	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
Char	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
Hex	0030	0031	0032	0033	0034	0035	0036	0037	0038	0039	003A	003B	003C	003D	003E	003F
Dec	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
Char	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Hex	0040	0041	0042	0043	0044	0045	0046	0047	0048	0049	004A	004B	004C	004D	004E	004F
Dec	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
Char	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
Hex	0050	0051	0052	0053	0054	0055	0056	0057	0058	0059	005A	005B	005C	005D	005E	005F
Dec	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
Char	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
Hex	0060	0061	0062	0063	0064	0065	0066	0067	0068	0069	006A	006B	006C	006D	006E	006F
Dec	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
Char	p	q	r	s	t	u	v	w	x	y	z	{	|	}	~	⌂
Hex	0070	0071	0072	0073	0074	0075	0076	0077	0078	0079	007A	007B	007C	007D	007E	007F
Dec	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
Char	Ç	ü	é	â	ä	à	å	ç	ê	ë	è	ï	î	ì	Ä	Å
Hex	0080	0081	0082	0083	0084	0085	0086	0087	0088	0089	008A	008B	008C	008D	008E	008F
Dec	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
Char	É	æ	Æ	ô	ö	ò	û	ù	ÿ	Ö	Ü	ø	£	Ø	×	ƒ
Hex	0090	0091	0092	0093	0094	0095	0096	0097	0098	0099	009A	009B	009C	009D	009E	009F
Dec	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
Char	á	í	ó	ú	ñ	Ñ	ª	º	¿	®	¬	½	¼	¡	«	»
Hex	00A0	00A1	00A2	00A3	00A4	00A5	00A6	00A7	00A8	00A9	00AA	00AB	00AC	00AD	00AE	00AF
Dec	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
Char	░	▒	▓	|	┤	Á	Â	À	©	╣	║	╗	╝	¢	¥	┐
Hex	00B0	00B1	00B2	00B3	00B4	00B5	00B6	00B7	00B8	00B9	00BA	00BB	00BC	00BD	00BE	00BF
Dec	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
Char	└	┴	┬	├	─	┼	ã	Ã	╚	╔	╩	╦	╠	═	╬	¤
Hex	00C0	00C1	00C2	00C3	00C4	00C5	00C6	00C7	00C8	00C9	00CA	00CB	00CC	00CD	00CE	00CF
Dec	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
Char	ð	Đ	Ê	Ë	È	ı	Í	Î	Ï	┘	┌	█	▄	¦	Ì	▀
Hex	00D0	00D1	00D2	00D3	00D4	00D5	00D6	00D7	00D8	00D9	00DA	00DB	00DC	00DD	00DE	00DF
Dec	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
Char	Ó	ß	Ô	Ò	õ	Õ	µ	þ	Þ	Ú	Û	Ù	ý	Ý	¯	´
Hex	00E0	00E1	00E2	00E3	00E4	00E5	00E6	00E7	00E8	00E9	00EA	00EB	00EC	00ED	00EE	00EF
Dec	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
Char	SHY	±	‗	¾	¶	§	÷	¸	°	¨	·	¹	³	²	■	NBSP
Hex	00F0	00F1	00F2	00F3	00F4	00F5	00F6	00F7	00F8	00F9	00FA	00FB	00FC	00FD	00FE	00FF
Dec	240	241	242	243	244	245	246	247	248	249	250	251	252	253	251	255

PC860 CODE TABLE (Portuguese)

Char	SP	!	“	#	$	%	&	‘	(	)	*	+	,	-	.	/
Hex	0020	0021	0022	0023	0024	0025	0026	0027	0028	0029	002A	002B	002C	002D	002E	002F
Dec	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
Char	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
Hex	0030	0031	0032	0033	0034	0035	0036	0037	0038	0039	003A	003B	003C	003D	003E	003F
Dec	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
Char	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Hex	0040	0041	0042	0043	0044	0045	0046	0047	0048	0049	004A	004B	004C	004D	004E	004F
Dec	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
Char	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
Hex	0050	0051	0052	0053	0054	0055	0056	0057	0058	0059	005A	005B	005C	005D	005E	005F
Dec	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
Char	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
Hex	0060	0061	0062	0063	0064	0065	0066	0067	0068	0069	006A	006B	006C	006D	006E	006F
Dec	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
Char	p	q	r	s	t	u	v	w	x	y	z	{	|	}	~	⌂
Hex	0070	0071	0072	0073	0074	0075	0076	0077	0078	0079	007A	007B	007C	007D	007E	007F
Dec	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
Char	Ç	ü	é	â	ã	à	Á	ç	ê	Ê	è	Í	Ô	ì	Ã	Â
Hex	0080	0081	0082	0083	0084	0085	0086	0087	0088	0089	008A	008B	008C	008D	008E	008F
Dec	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
Char	É	À	È	ô	ö	ò	Ú	ù	Ì	Õ	Ü	¢	£	Ù	Pts	Ó
Hex	0090	0091	0092	0093	0094	0095	0096	0097	0098	0099	009A	009B	009C	009D	009E	009F
Dec	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
Char	á	í	ó	ú	ñ	Ñ	ª	º	¿	Ò	¬	½	¼	¡	«	»
Hex	00A0	00A1	00A2	00A3	00A4	00A5	00A6	00A7	00A8	00A9	00AA	00AB	00AC	00AD	00AE	00AF
Dec	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
Char	░	▒	▓	│	┤	╡	╢	╖	╕	╣	║	╗	╝	╜	╛	┐
Hex	00B0	00B1	00B2	00B3	00B4	00B5	00B6	00B7	00B8	00B9	00BA	00BB	00BC	00BD	00BE	00BF
Dec	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
Char	└	┴	┬	├	─	┼	╞	╟	╚	╔	╩	╦	╠	═	╬	╧
Hex	00C0	00C1	00C2	00C3	00C4	00C5	00C6	00C7	00C8	00C9	00CA	00CB	00CC	00CD	00CE	00CF
Dec	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
Char	╨	╤	╥	╙	╘	╒	╓	╫	╪	┘	┌	▉	▄	▌	▐	▀
Hex	00D0	00D1	00D2	00D3	00D4	00D5	00D6	00D7	00D8	00D9	00DA	00DB	00DC	00DD	00DE	00DF
Dec	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
Char	α	ß	Γ	π	Σ	σ	µ	τ	Φ	Θ	Ω	δ	∞	φ	ε	∩
Hex	00E0	00E1	00E2	00E3	00E4	00E5	00E6	00E7	00E8	00E9	00EA	00EB	00EC	00ED	00EE	00EF
Dec	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
Char	≡	±	≥	≤	⌠	⌡	÷	≈	°	∙	·	√	n	2	■	NBSP
Hex	00F0	00F1	00F2	00F3	00F4	00F5	00F6	00F7	00F8	00F9	00FA	00FB	00FC	00FD	00FE	00FF
Dec	240	241	242	243	244	245	246	247	248	249	250	251	252	253	251	255

PC863 CODE TABLE (Canadian, French)

Char	SP	!	“	#	$	%	&	‘	(	)	*	+	,	-	.	/
Hex	0020	0021	0022	0023	0024	0025	0026	0027	0028	0029	002A	002B	002C	002D	002E	002F
Dec	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
Char	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
Hex	0030	0031	0032	0033	0034	0035	0036	0037	0038	0039	003A	003B	003C	003D	003E	003F
Dec	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
Char	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Hex	0040	0041	0042	0043	0044	0045	0046	0047	0048	0049	004A	004B	004C	004D	004E	004F
Dec	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
Char	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
Hex	0050	0051	0052	0053	0054	0055	0056	0057	0058	0059	005A	005B	005C	005D	005E	005F
Dec	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
Char	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
Hex	0060	0061	0062	0063	0064	0065	0066	0067	0068	0069	006A	006B	006C	006D	006E	006F
Dec	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
Char	p	q	r	s	t	u	v	w	x	y	z	{	|	}	~	⌂
Hex	0070	0071	0072	0073	0074	0075	0076	0077	0078	0079	007A	007B	007C	007D	007E	007F
Dec	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
Char	Ç	ü	é	â	Â	à	¶	ç	ê	ë	è	ï	î	‗	À	§
Hex	0080	0081	0082	0083	0084	0085	0086	0087	0088	0089	008A	008B	008C	008D	008E	008F
Dec	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
Char	É	È	Ê	ô	Ë	Ï	û	ù	¤	Ô	Ü	¢	£	Ù	Û	ƒ
Hex	0090	0091	0092	0093	0094	0095	0096	0097	0098	0099	009A	009B	009C	009D	009E	009F
Dec	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
Char	¦	´	ó	ú	¨	¸	³	¯	Î	⌐	¬	½	¼	¾	«	»
Hex	00A0	00A1	00A2	00A3	00A4	00A5	00A6	00A7	00A8	00A9	00AA	00AB	00AC	00AD	00AE	00AF
Dec	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
Char	░	▒	▓	│	┤	╡	╢	╖	╕	╣	║	╗	╝	╜	╛	┐
Hex	00B0	00B1	00B2	00B3	00B4	00B5	00B6	00B7	00B8	00B9	00BA	00BB	00BC	00BD	00BE	00BF
Dec	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
Char	└	┴	┬	├	─	┼	╞	╟	╚	╔	╩	╦	╠	═	╬	╧
Hex	00C0	00C1	00C2	00C3	00C4	00C5	00C6	00C7	00C8	00C9	00CA	00CB	00CC	00CD	00CE	00CF
Dec	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
Char	╨	╤	╥	╙	╘	╒	╓	╫	╪	┘	┌	▉	▄	▌	▐	▀
Hex	00D0	00D1	00D2	00D3	00D4	00D5	00D6	00D7	00D8	00D9	00DA	00DB	00DC	00DD	00DE	00DF
Dec	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
Char	α	ß	Γ	π	Σ	σ	µ	τ	Φ	Θ	Ω	δ	∞	φ	ε	∩
Hex	00E0	00E1	00E2	00E3	00E4	00E5	00E6	00E7	00E8	00E9	00EA	00EB	00EC	00ED	00EE	00EF
Dec	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
Char	≡	±	≥	≤	⌠	⌡	÷	≈	°	∙	·	√	ⁿ	²	■	NBSP
Hex	00F0	00F1	00F2	00F3	00F4	00F5	00F6	00F7	00F8	00F9	00FA	00FB	00FC	00FD	00FE	00FF
Dec	240	241	242	243	244	245	246	247	248	249	250	251	252	253	251	255

PC865 CODE TABLE (Nordic)

Char	SP	!	“	#	$	%	&	‘	(	)	*	+	,	-	.	/
Hex	0020	0021	0022	0023	0024	0025	0026	0027	0028	0029	002A	002B	002C	002D	002E	002F
Dec	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
Char	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
Hex	0030	0031	0032	0033	0034	0035	0036	0037	0038	0039	003A	003B	003C	003D	003E	003F
Dec	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
Char	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Hex	0040	0041	0042	0043	0044	0045	0046	0047	0048	0049	004A	004B	004C	004D	004E	004F
Dec	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
Char	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
Hex	0050	0051	0052	0053	0054	0055	0056	0057	0058	0059	005A	005B	005C	005D	005E	005F
Dec	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
Char	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
Hex	0060	0061	0062	0063	0064	0065	0066	0067	0068	0069	006A	006B	006C	006D	006E	006F
Dec	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
Char	p	q	r	s	t	u	v	w	x	y	z	{	|	}	~	⌂
Hex	0070	0071	0072	0073	0074	0075	0076	0077	0078	0079	007A	007B	007C	007D	007E	007F
Dec	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
Char	Ç	ü	é	â	ä	à	å	ç	ê	ë	è	ï	î	ì	Ä	Å
Hex	0080	0081	0082	0083	0084	0085	0086	0087	0088	0089	008A	008B	008C	008D	008E	008F
Dec	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
Char	É	æ	Æ	ô	ö	ò	û	ù	ÿ	Ö	Ü	ø	£	Ø	Pts	ƒ
Hex	0090	0091	0092	0093	0094	0095	0096	0097	0098	0099	009A	009B	009C	009D	009E	009F
Dec	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
Char	á	í	ó	ú	ñ	Ñ	ª	º	¿	⌐	¬	½	¼	¡	«	¤
Hex	00A0	00A1	00A2	00A3	00A4	00A5	00A6	00A7	00A8	00A9	00AA	00AB	00AC	00AD	00AE	00AF
Dec	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
Char	▒	▒	▓	│	┤	╡	╢	╖	╕	╣	║	╗	╝	╜	╛	┐
Hex	00B0	00B1	00B2	00B3	00B4	00B5	00B6	00B7	00B8	00B9	00BA	00BB	00BC	00BD	00BE	00BF
Dec	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
Char	└	┴	┬	├	─	┼	╞	╟	╚	╔	╩	╦	╠	═	╬	╧
Hex	00C0	00C1	00C2	00C3	00C4	00C5	00C6	00C7	00C8	00C9	00CA	00CB	00CC	00CD	00CE	00CF
Dec	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
Char	╨	╤	╥	╙	╘	╒	╓	╫	╪	┘	┌	▉	▄	▌	▐	▀
Hex	00D0	00D1	00D2	00D3	00D4	00D5	00D6	00D7	00D8	00D9	00DA	00DB	00DC	00DD	00DE	00DF
Dec	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
Char	α	ß	Γ	π	Σ	σ	µ	τ	Φ	Θ	Ω	δ	∞	φ	ε	∩
Hex	00E0	00E1	00E2	00E3	00E4	00E5	00E6	00E7	00E8	00E9	00EA	00EB	00EC	00ED	00EE	00EF
Dec	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
Char	≡	±	≥	≤	⌠	⌡	÷	≈	°	∙	·	√	n	2	■	NBSP
Hex	00F0	00F1	00F2	00F3	00F4	00F5	00F6	00F7	00F8	00F9	00FA	00FB	00FC	00FD	00FE	00FF
Dec	240	241	242	243	244	245	246	247	248	249	250	251	252	253	251	255

PC858 CODE TABLE (Euro symbol)

Char	SP	!	“	#	$	%	&	‘	(	)	*	+	,	-	.	/
Hex	0020	0021	0022	0023	0024	0025	0026	0027	0028	0029	002A	002B	002C	002D	002E	002F
Dec	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
Char	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
Hex	0030	0031	0032	0033	0034	0035	0036	0037	0038	0039	003A	003B	003C	003D	003E	003F
Dec	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
Char	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Hex	0040	0041	0042	0043	0044	0045	0046	0047	0048	0049	004A	004B	004C	004D	004E	004F
Dec	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
Char	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
Hex	0050	0051	0052	0053	0054	0055	0056	0057	0058	0059	005A	005B	005C	005D	005E	005F
Dec	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
Char	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
Hex	0060	0061	0062	0063	0064	0065	0066	0067	0068	0069	006A	006B	006C	006D	006E	006F
Dec	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
Char	p	q	r	s	t	u	v	w	x	y	z	{	|	}	~	⌂
Hex	0070	0071	0072	0073	0074	0075	0076	0077	0078	0079	007A	007B	007C	007D	007E	007F
Dec	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
Char	Ç	ü	é	â	ä	à	å	ç	ê	ë	è	ï	î	ì	Ä	Å
Hex	0080	0081	0082	0083	0084	0085	0086	0087	0088	0089	008A	008B	008C	008D	008E	008F
Dec	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
Char	É	æ	Æ	ô	ö	ò	û	ù	ÿ	Ö	Ü	ø	£	Ø	×	ƒ
Hex	0090	0091	0092	0093	0094	0095	0096	0097	0098	0099	009A	009B	009C	009D	009E	009F
Dec	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
Char	á	í	ó	ú	ñ	Ñ	ª	º	¿	®	¬	½	¼	¡	«	»
Hex	00A0	00A1	00A2	00A3	00A4	00A5	00A6	00A7	00A8	00A9	00AA	00AB	00AC	00AD	00AE	00AF
Dec	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
Char	░	▒	▓	|	┤	Á	Â	À	©	╣	║	╗	╝	¢	¥	┐
Hex	00B0	00B1	00B2	00B3	00B4	00B5	00B6	00B7	00B8	00B9	00BA	00BB	00BC	00BD	00BE	00BF
Dec	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
Char	└	┴	┬	├	─	┼	ã	Ã	╚	╔	╩	╦	╠	═	╬	¤
Hex	00C0	00C1	00C2	00C3	00C4	00C5	00C6	00C7	00C8	00C9	00CA	00CB	00CC	00CD	00CE	00CF
Dec	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
Char	ð	Đ	Ê	Ë	È	€	Í	Î	Ï	┘	┌	█	▄	¦	Ì	▀
Hex	00D0	00D1	00D2	00D3	00D4	00D5	00D6	00D7	00D8	00D9	00DA	00DB	00DC	00DD	00DE	00DF
Dec	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
Char	Ó	ß	Ô	Ò	õ	Õ	µ	þ	Þ	Ú	Û	Ù	ý	Ý	¯	´
Hex	00E0	00E1	00E2	00E3	00E4	00E5	00E6	00E7	00E8	00E9	00EA	00EB	00EC	00ED	00EE	00EF
Dec	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
Char	SHY	±	‗	¾	¶	§	÷	¸	°	¨	·	¹	³	²	■	NBSP
Hex	00F0	00F1	00F2	00F3	00F4	00F5	00F6	00F7	00F8	00F9	00FA	00FB	00FC	00FD	00FE	00FF
Dec	240	241	242	243	244	245	246	247	248	249	250	251	252	253	251	255

NOTE: To print the Euro (€) symbol, the command sequence is: $1B, $74, $13, $D5 (see Command Reference).

In ESC/POS™ emulation, it is possible to use TrueType fonts. To be used, a TrueType font must be monospace type (every character of the font must have the same dimension). The check is made by the printer when the font is selected. TrueType fonts will be automatically scaled by the printer in order to obtain the same available width for the embedded fonts (11, 15 and 20 cpi).

The quality of TrueType fonts and the correct positioning into the printable area will result from the font producers and the font implementation.
The available code tables are : PC437, PC850, PC860, PC863, PC865, PC858, PC866, PC852, WPC1252.

For the correct printing of the code tables, it is necessary that the selected TrueType font contains all the characters in the tables. Otherwise, the '□' symbol will be printed instead the missing character.
All commands for printing configuration are usable both with TrueType fonts and with embedded fonts.
It is possible to address the TrueType font respects the UNICODE™ standard (see www.unicode.org), by using UTF-8 or UTF-16 encoding.

7.11 Character sets in SVELTA emulation

In SVELTA emulation the printer has 20 embedded fonts of varying width which may be accessed through control characters (see commands description in SVELTA emulation of Command Reference). The following list shows the font available and relative dimensions in dot:

- Font HEL8PT8 (A) Proportional Font with fixed height (H = 28 dot)
- Font HEL10PT8 (A) Proportional Font with fixed height (H = 34 dot)
- Font HEL14PT8 (A) Proportional Font with fixed height (H = 50 dot)
- Font HEL16PT8 (A) Proportional Font with fixed height (H = 55 dot)
- Font 18x24 (Font 18x24 in ESC/POS emulation)
- Font 14x24 (Font 14x24 in ESC/POS emulation)
- Font 10x24 (Font 10x24 in ESC/POS emulation)
- Font 8x12 (B) Fixed Font
- Font 8x12-2 (B) Fixed Font
- Font 12x12 (B) Fixed Font
- Font 14x11 (B) Fixed Font
- Font 16x24 (B) Fixed Font
- Font 16x24_1 (B) (C) Fixed Font
- Font 16x24_2 (B) (C) Fixed Font
- Font 20x15 (B) Fixed Font
- Font 28x20 (B) Fixed Font
- Font 14x24_1 (B) (C) Fixed Font
- Font 16x24CN (B) (C) Fixed Font
- Font OCRB (20x32) (B) Fixed Font

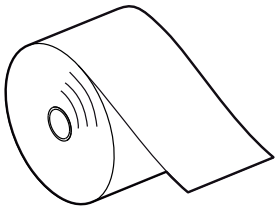
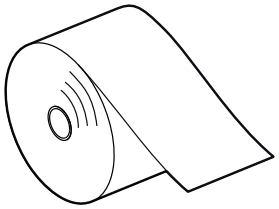
For further informations to characters representations print directly the Font Test(D).

NOTES:
(A) A proportional font is a font in which different characters have different pitches (widths).
(B) A fixed font is the opposite of a proportional font and is a fixed-pitch font.
(C) The fonts with the same name and dimension contain different characters in different positions from theirs.
(D) During power-up, if the FORM FEED (FF) key is held down, the printer executes the FONT TEST.

In SVELTA emulation, it is possible to use TrueType fonts. True Type fonts are printable with every angle of rotation and in bold, reverse, italic and underlined mode.
It is possible to address the TrueType font respects the UNICODE™ standard (see www.unicode.org), by using UTF-8 or UTF-16 encoding.
For the correct printing of the code tables, it is necessary that the selected TrueType font contains all the characters in the tables. Otherwise, the '□' symbol will be printed instead the missing character.

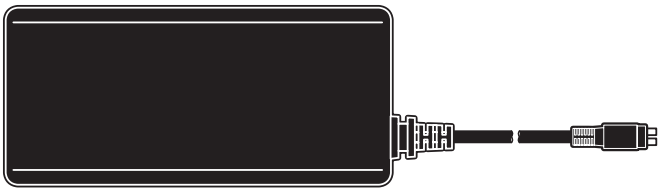
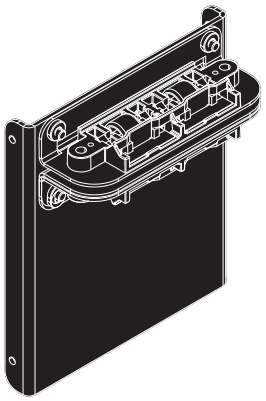
8 CONSUMABLES

The following table shows the list of available consumables for device:

DESCRIPTION	CODE
THERMAL PAPER ROLL WITH HEAT-SENSITIVE SIDE ON OUTSIDE OF THE ROLL weight = 140g/m² width = 54mm Ø external = 300mm Ø core = 76mm	**67300000000340** 
THERMAL PAPER ROLL WITH HEAT-SENSITIVE SIDE ON OUTSIDE OF THE ROLL weight = 78g/m² width = 54mm Ø external = 90mm Ø core = 50mm	**67300000000342** 

9 ACCESSORIES

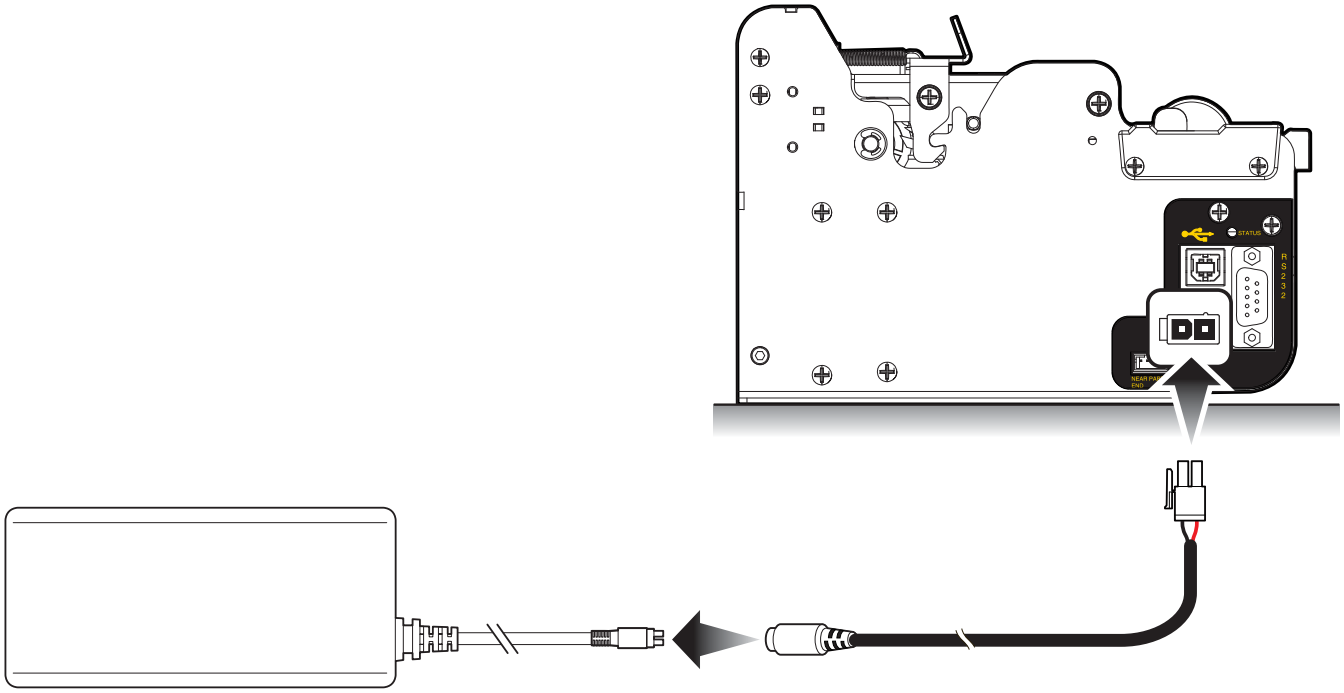
The following table shows the list of available accessories for device:

DESCRIPTION	CODE
POWER SUPPLY (for technical specifications, see paragraph 7.1)	**963GE020000003** 
POWER SUPPLY ADAPTER CABLE (see paragraph 9.1)	**26900000000005**
STOP DEVICE TICKET (see paragraph 9.2)	**970AN010000001** 

9.1 Power supply adapter cable

For the device is available an adapter cable (cod.970AN010000001) supplied as an accessory to be connected to external power supply 60W (cod 963GE020000003).

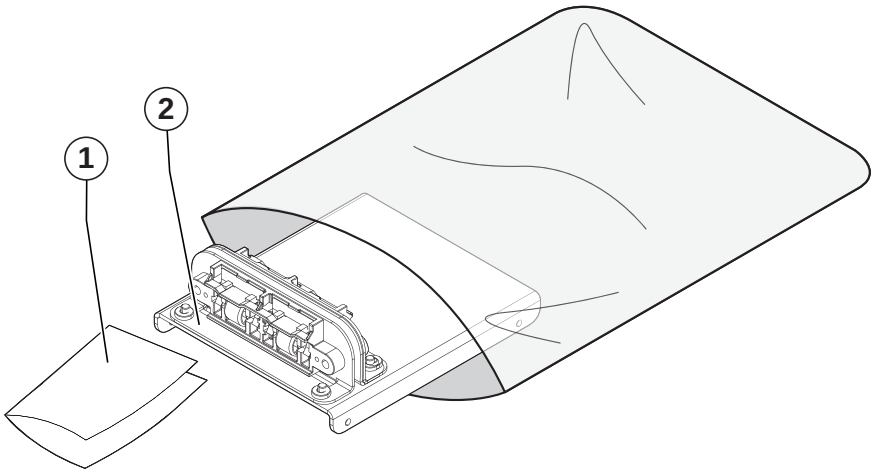
Connect the adapter cable to the power supply as follows:



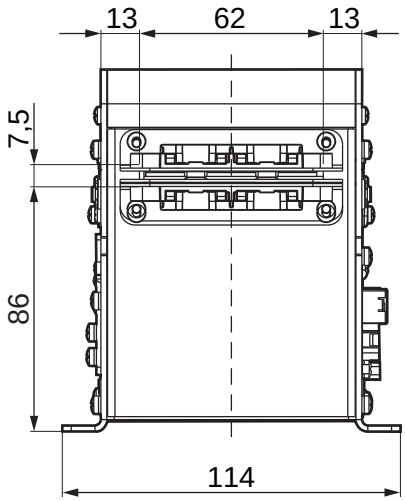
9.2 Stop device ticket kit

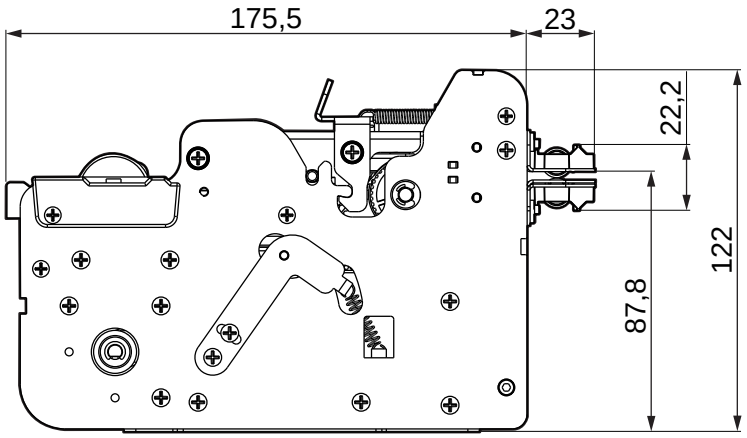
For the device is available a stop device ticket kit (cod.970AN010000001) supplied as an accessory. The kit makes it possible to prevent that after printing the ticket falls.

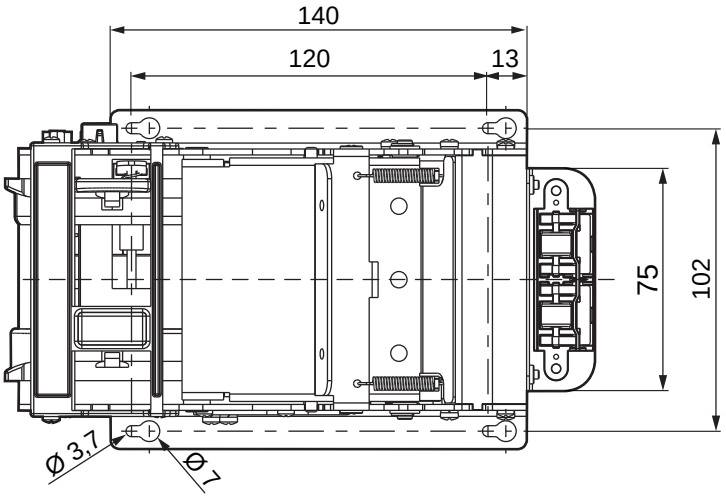
The kit cod. 970AN010000001 includes:
1. Assembly instructions;
2. Stop device ticket.



PRINTER DIMENSIONS WITH STOP DEVICE TICKET (in mm)







10 ALIGNMENT

Device is provided with sensors for the use of alignment notch in order to handle:
- roll of tickets with pre-printed fields and a fixed length;
- Fan-Fold module of tickets with pre-printed fields and a fixed length.

The alignment notch may be formed by
- black mark printed on paper (see par.7.6);
- hole between two tickets (see par.7.8);
- gap between two labels (see par.7.7).

All alignment sensors are “reflection” sensors: this kind of sensor emits a band of light and detects the quantity of light reflected to it.
The presence of the notch is therefore detected by the amount of light that returns to the sensor, considering that the light is reflected by the white paper and absorbed by the black mark.

To use tickets with holes or labes with gap, it is possible to use the same sensors as “transparence” sensors, coupled two by two: a beam of light is emitted by the transmitter sensor and the quantity of light which reaches the opposite receiver sensor is detected.
The presence of the hole/gap is detected evaluating the amount of light that arrives to the opposite sensor, considering that the paper doesn’t allow the beam of light to reach the receiver, whereas a gap or a hole lets the light to reach the receiver.

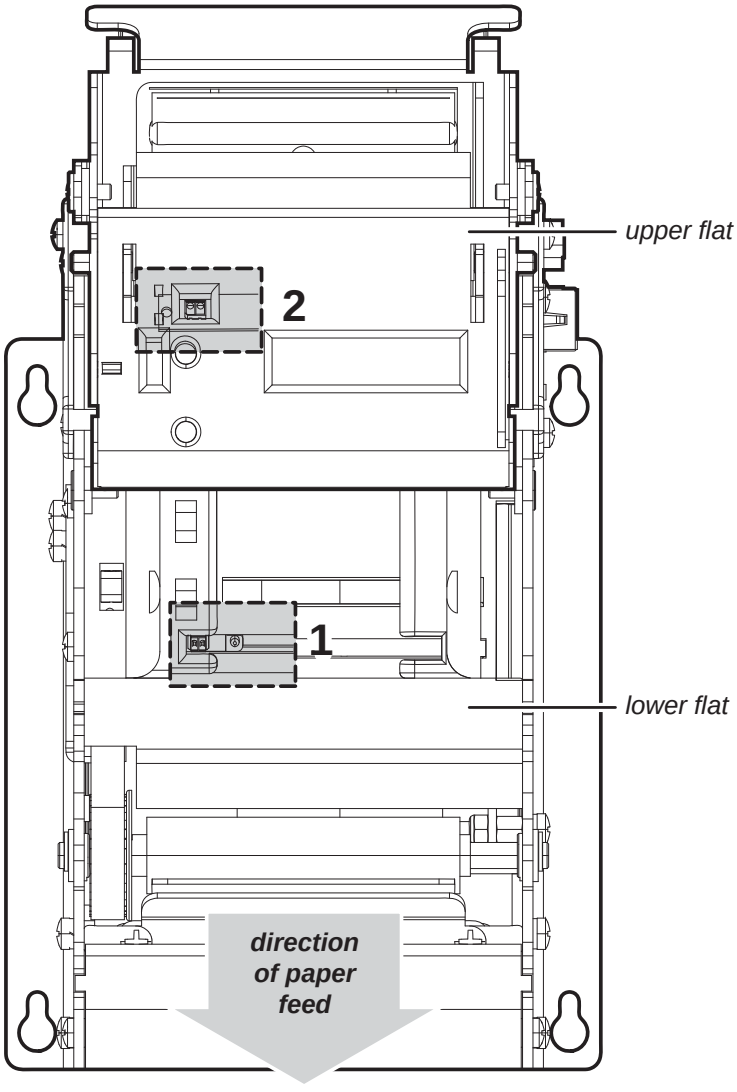
The following paragraphs show how to correctly set the configuration parameters of device in order to assure the alignment.

10.1 Enable alignment

Printer is provided with 2 alignment sensors, placed as follows:
- 1 mobile sensor on the lower flat of printer
- 1 sensor on the upper flat of printer.

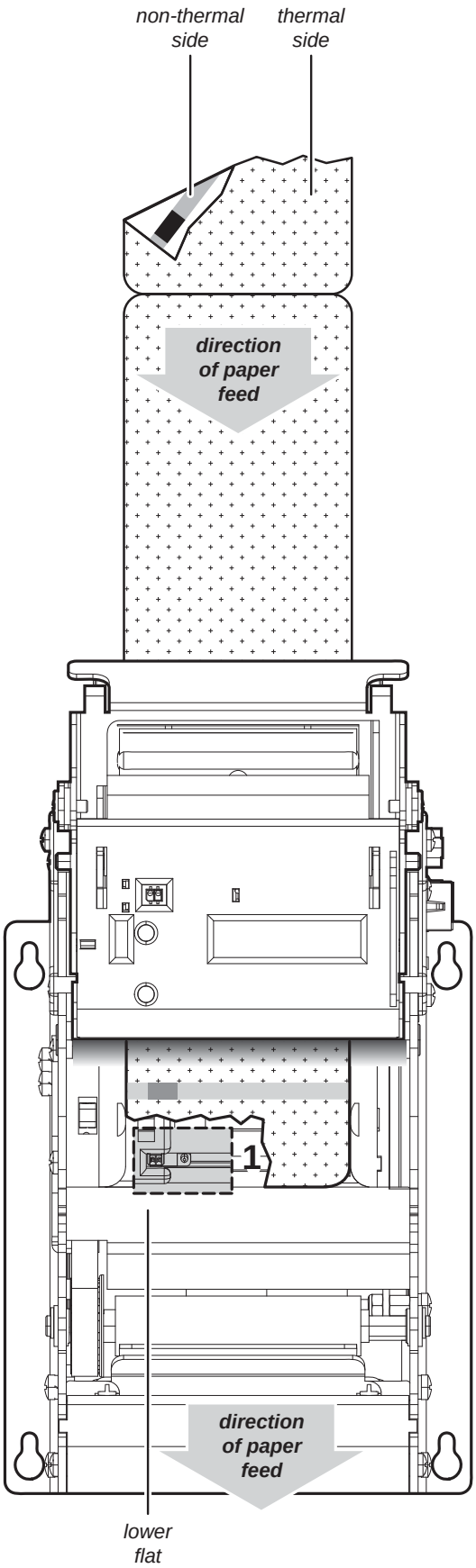
To guarantee the alignment, it is necessary to correctly choose the sensor to use for the notch detection depending on the type of notch and its location on the ticket.
To do this, you must enable the parameter “Notch/B.Mark Position” during the Setup procedure (see cap.5) and set the correct value of this parameter as described in the following table.

SENSOR USED (see following figure)	VALUE OF THE “NOTCH/B.MARK POSITION” PARAMETER	USING MODE OF SENSORS	NOTCH TYPE	NOTCH POSITION ON TICKET
-	Disabled	-	Alignment disabled	N.A.
1	Bottom	Reflection	Black mark printed on paper	Non-thermal side
2	Top	Reflection	Black mark printed on paper	Lateral thermal side
1 + 2	Transparent	Transparence	Hole between tickets or gap between labels	Lateral

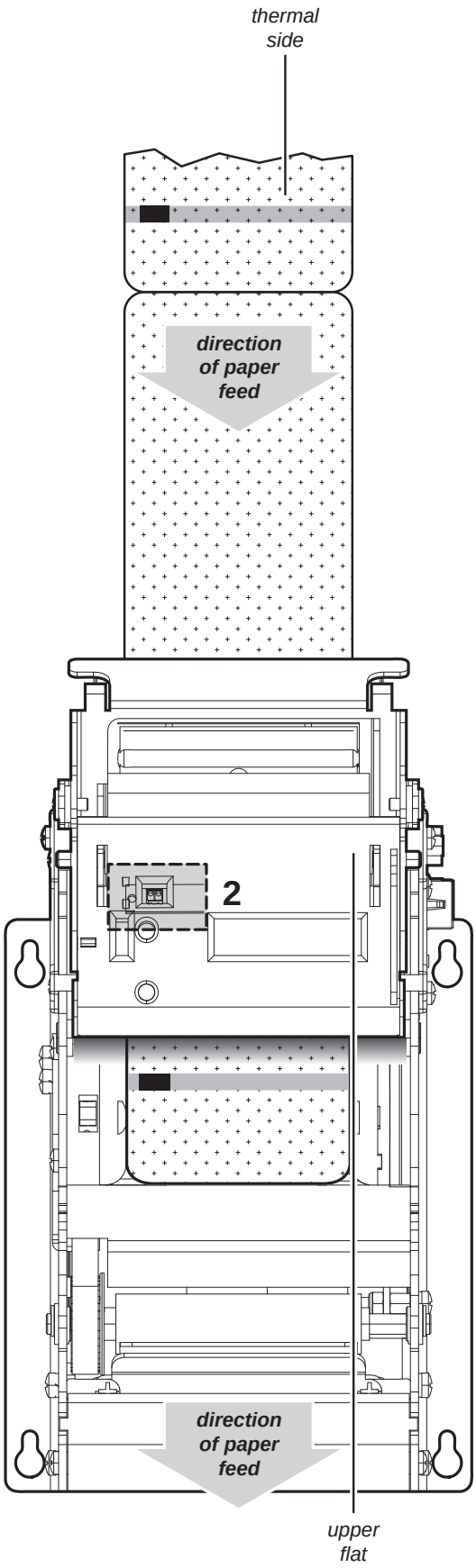


The following figures show the usable format of paper and the corresponding sensors used for alignment:

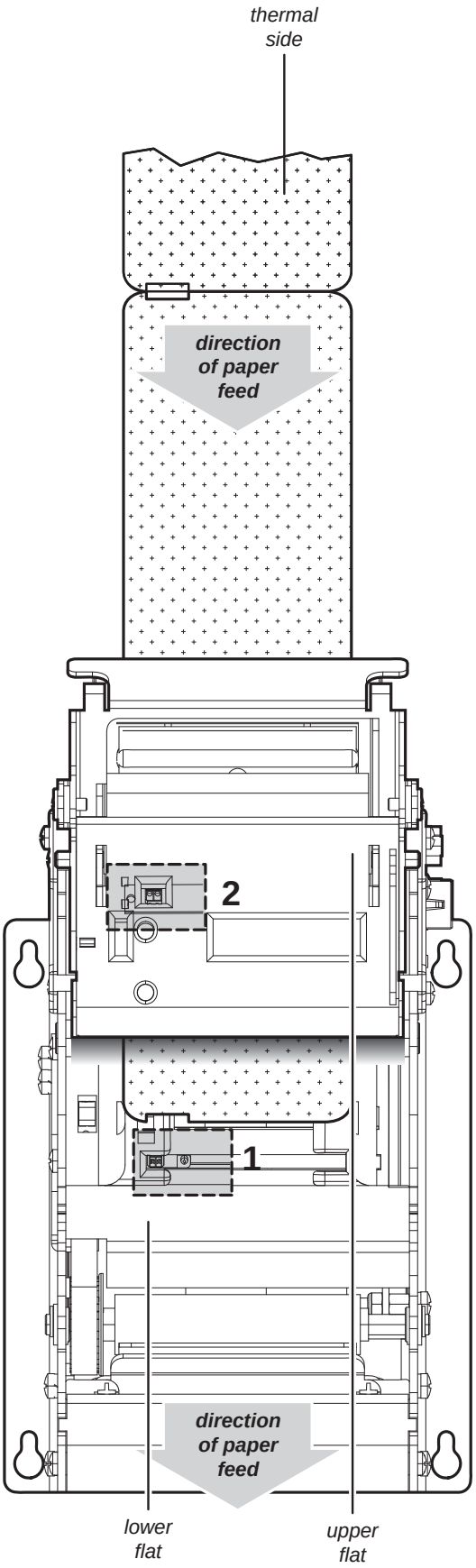
paper with black mark on the non-thermal side of paper



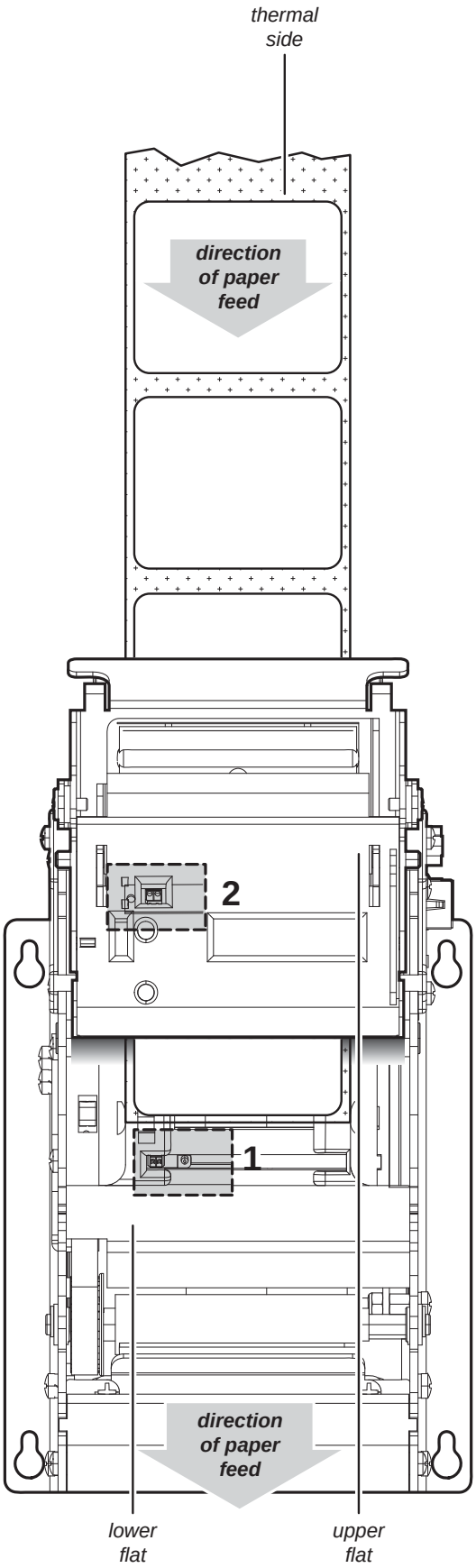
paper with black mark on the thermal side of paper



tickets with hole



paper with labels



10.2 Calibration

The sensor calibration occurs automatically and consists in adjusting the quantity of light emitted to match the degree of whiteness of the paper used and the degree of black of the mark printed on paper.

The device automatically performs the self-calibration during the Setup procedure only if the “Notch/B.Mark Position” parameter is set to a value other than “Disabled” (see cap.5).

When self-calibration starts, the device performs some paper feeds and then it prints the calibration result and the value of the PWM duty-cicle of the alignment sensor driver so that it can be perform an optimal notch detection:

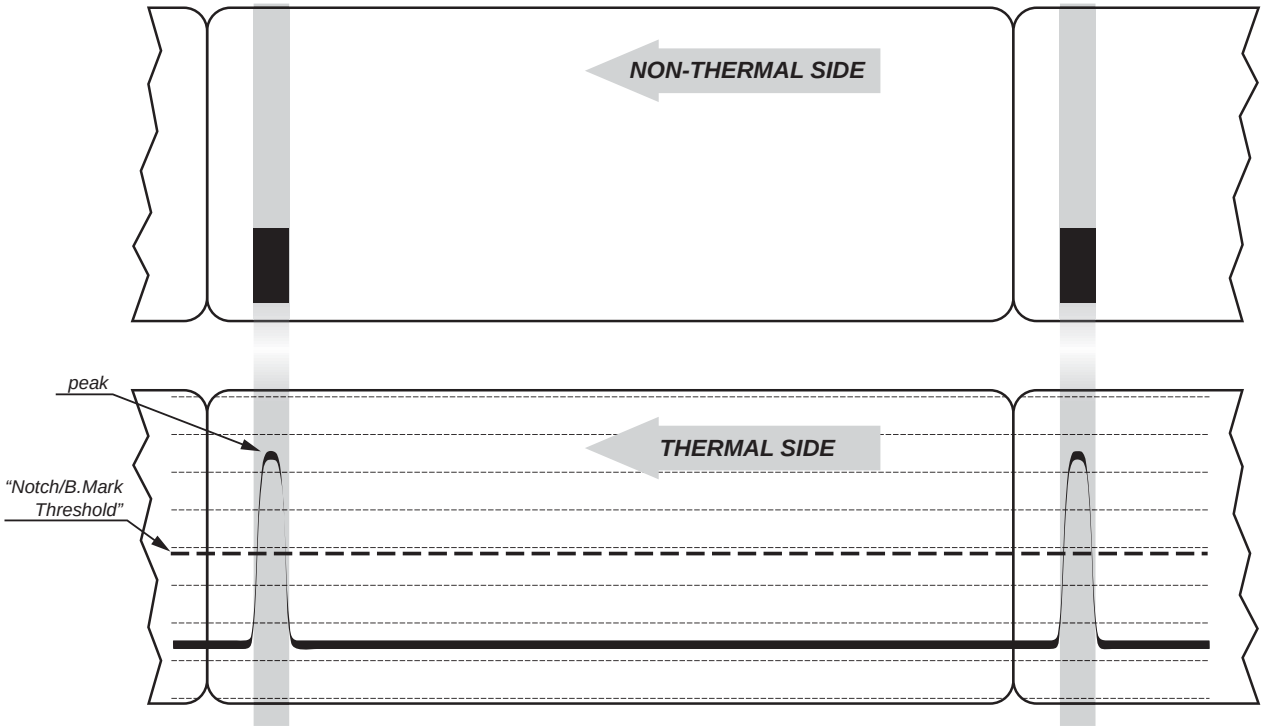
Autosetting Notch : OK
PWM Duty Cycle : 85.3%

The “Autosetting Notch” parameter indicates the result of the self-calibration procedure; OK will appear if it has been successful, NOT OK will appear if the procedure has failed.

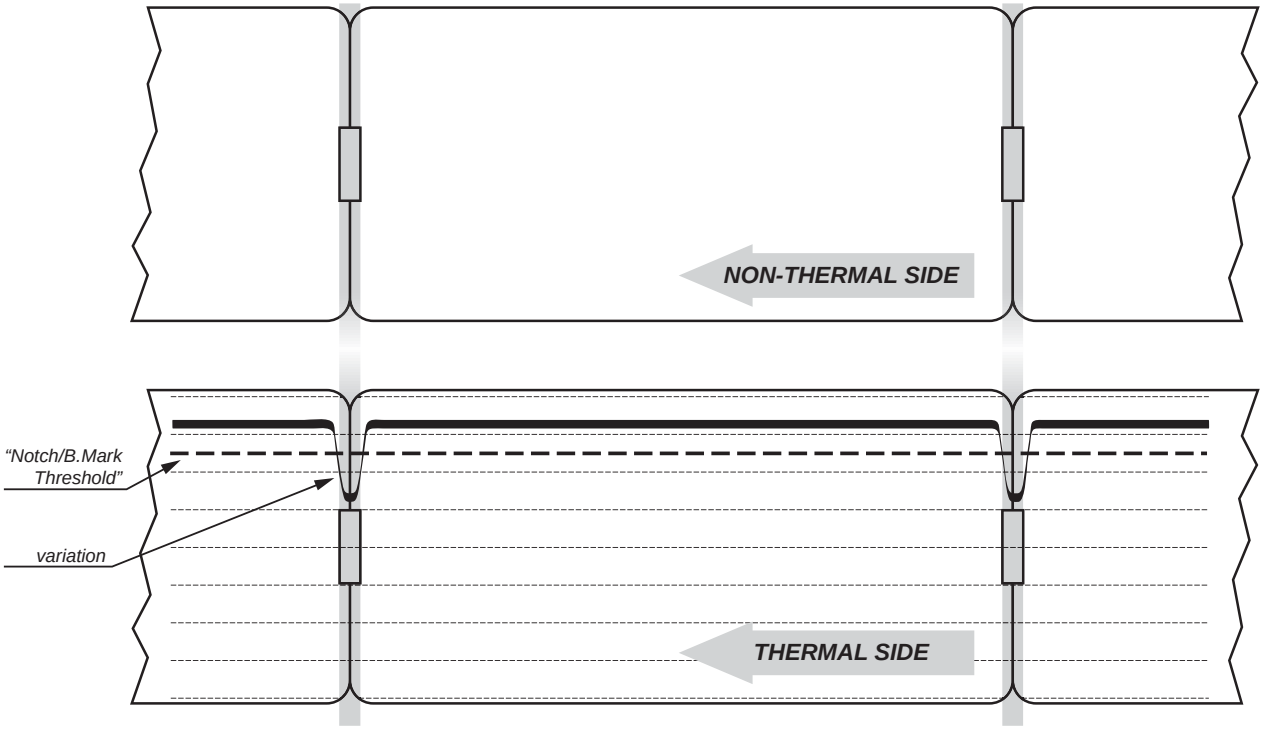
After the printing of the procedure result, the device offers the execution of the function of paper characterization “Characterize Paper” and the change of the “Notch/B.Mark Threshold” parameter which represents the detection threshold of the notch.
Choosing the “Yes” value for the “Characterize Paper” parameter, the device prints a graphic representation (see following figures) of the outgoing voltage of the alignment sensor (expressed as a percentage) and the “Notch/B.Mark Threshold” value.

This graphic representation is useful to set the most suitable value to assign to the “Notch/B.Mark Threshold” parameter and then to better identify the optimal threshold value which takes into account the variations of the signal and the small oscillations around zero.

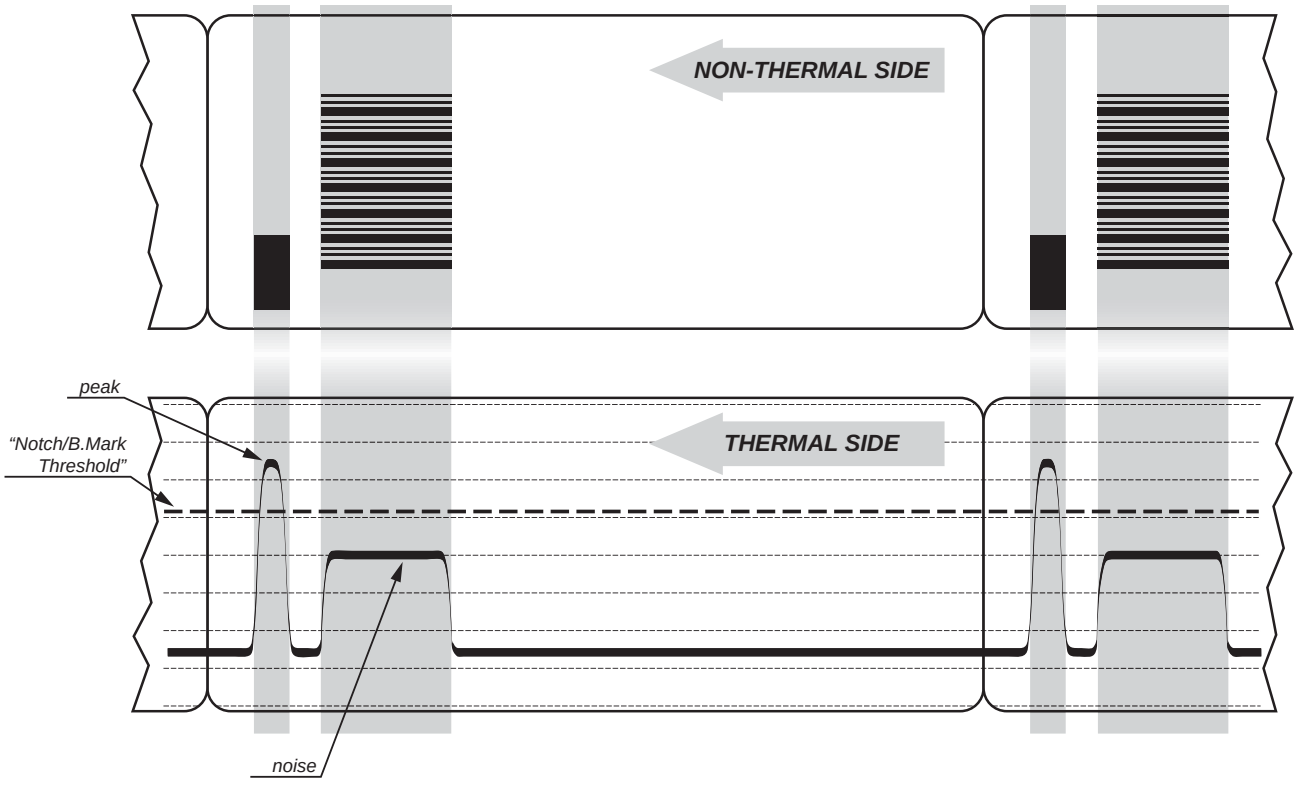
The following figure shows an example of paper with the non-thermal paper printed with black marks: the outgoing voltage is constant while passing the white paper between two notches and presents a peak at each black mark.
In this case, the optimal value for the “Notch/B.Mark Threshold” parameter is placed about half of the peak.



The following figure shows an example of paper with holes: the outgoing voltage is constant while passing the paper between two holes and presents a variation at each hole.
In this case, the optimal value for the “Notch/B.Mark Threshold” parameter is placed about half of the variation.



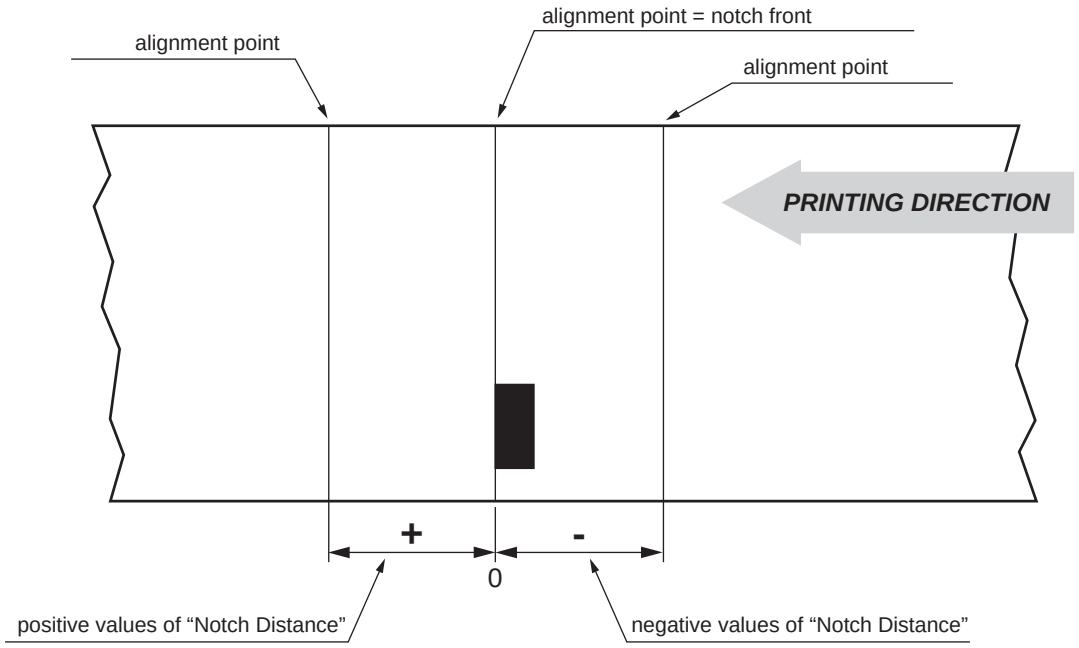
The following figure shows an example of paper with the non-thermal paper printed with black marks and other graphics (for example, a barcode): the outgoing voltage is constant while passing the white paper between two notches, presents a peak at each black mark and presents some “noise” at each barcode.
In this case, the optimal value for the “Notch Threshold” parameter is located about halfway between the peak value and the maximum value of the “noise”.



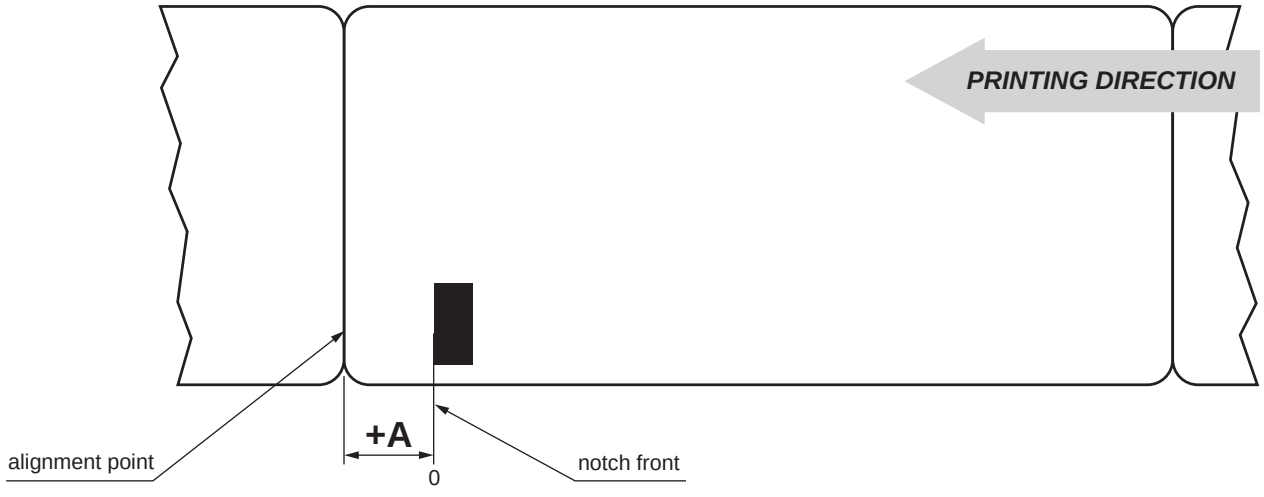
If the maximum value of “noise” read by the sensor is very close to the peak value, it might be difficult to place the value of the “Notch/B.Mark Threshold” at an intermediate point. In these cases, it is mandatory that the portion of paper between the point of printing end and the front notch is completely white (no graphics). In this way, the only next graphic detected by the sensor for alignment after the printing end will be the notch.

10.3 Alignment parameters

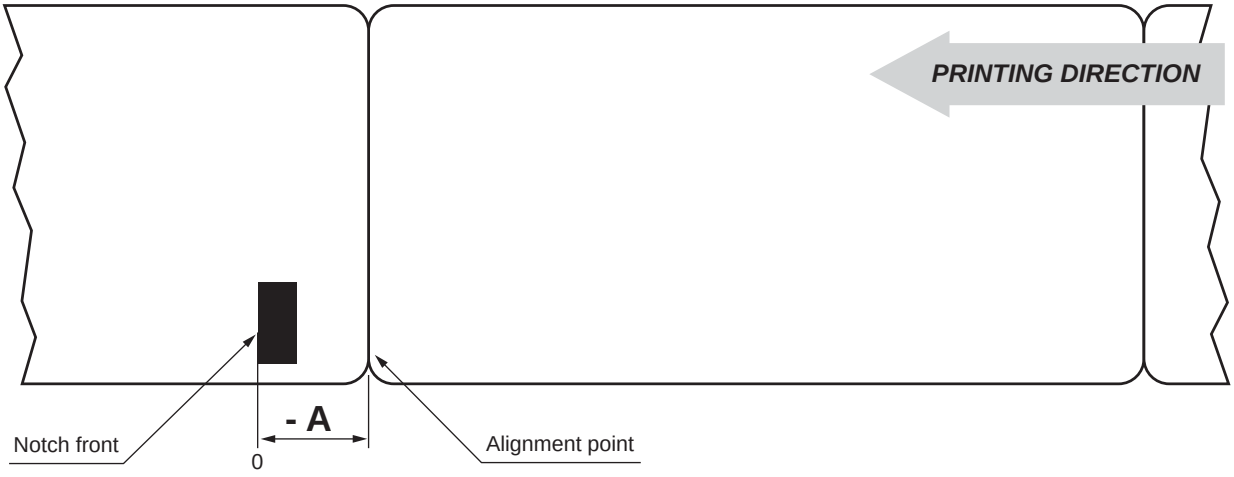
The “alignment point” is defined as the position inside the ticket to use for the notch alignment. If you use paper with perforation (FanFold modules), the alignment point corresponds with the edge of the ticket.
The distance between the notch edge and the alignment point is defined as “Notch Distance”. Referring to the front of the notch, the value of “Notch Distance” can be positive or negative. If the “Notch Distance” value is set to 0, the alignment point is set at the beginning of the notch.

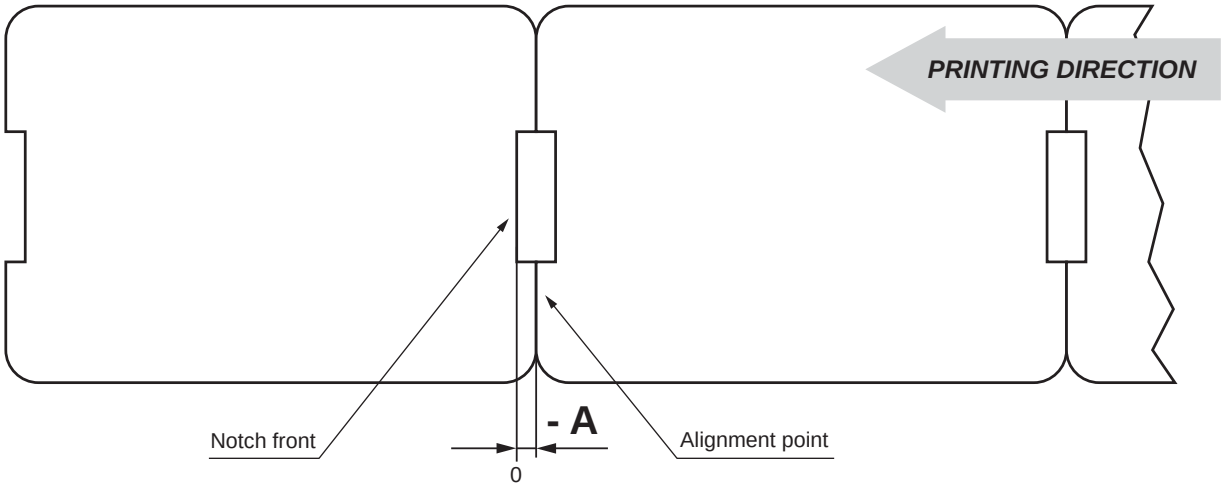


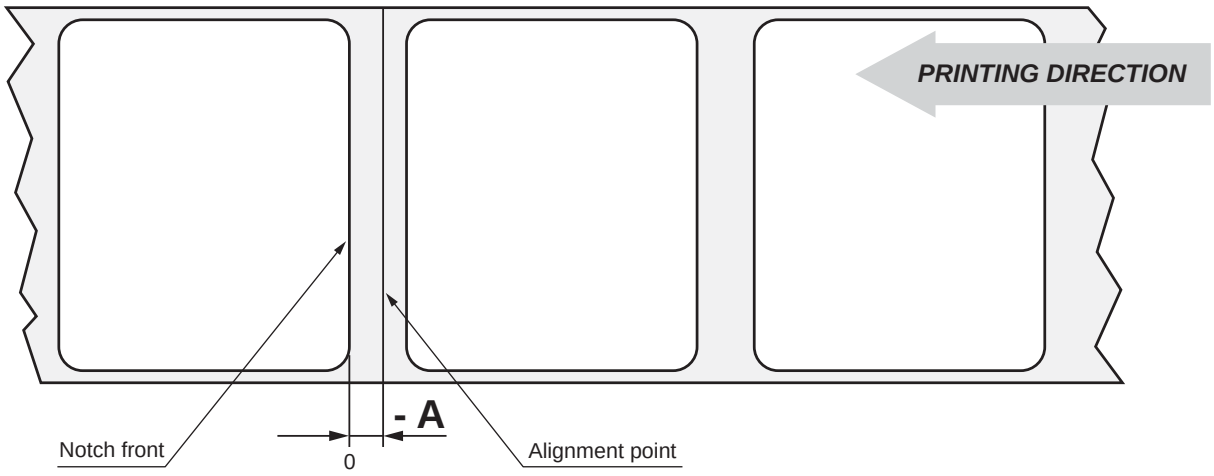
The following figure shows an example of paper with alignment point set by a positive value of “Notch Distance” (“Notch Distance” = + A):



To set a negative value of the “Notch Distance” parameter is useful in cases where the alignment point refers to the notch printed on the previous ticket or where the desired cutting line is placed in the middle of the alignment notch (for example, for paper with holes or gap). In the following images, the value of “Notch Distance” parameter is set to -A.

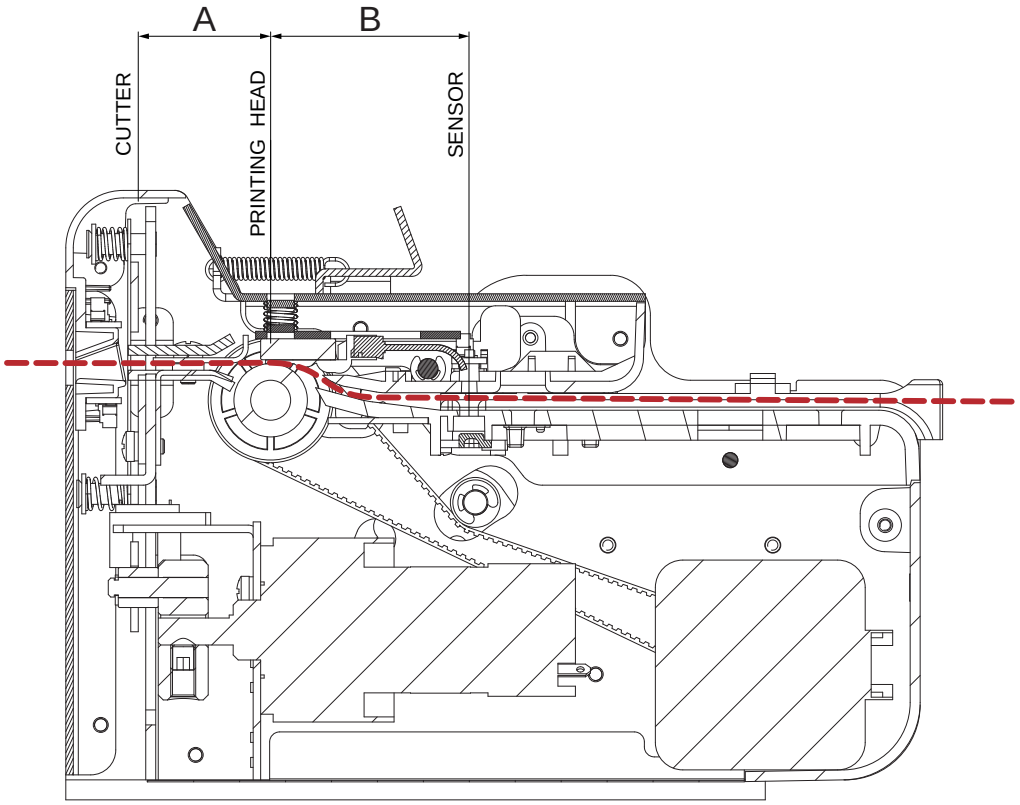






If the notch is placed on the non-thermal side of paper, the “Notch Distance” value can have a minimum value of -5mm (negative value) and a maximum of 66mm. This maximum value is imposed by the mechanical distance between the lower notch sensor and the printing head.

The following figure shows a section of the device with the paper path and the distances (in mm) between the alignment sensor, the printing head and the cutter (cutting line), where
A = 26.5mm = distance between the cutting line (cutter) and the printing line (head) on paper
B = 39.7mm = distance between the the printing line (head) and the alignment sensor



ESC/POS™ EMULATION

To define the alignment point you need to set the printer parameters that compose the numerical value of the “Notch Distance” parameter.
For example, to set a notch distance of 15mm between the notch and the alignment point, the parameters must be set on the following values:

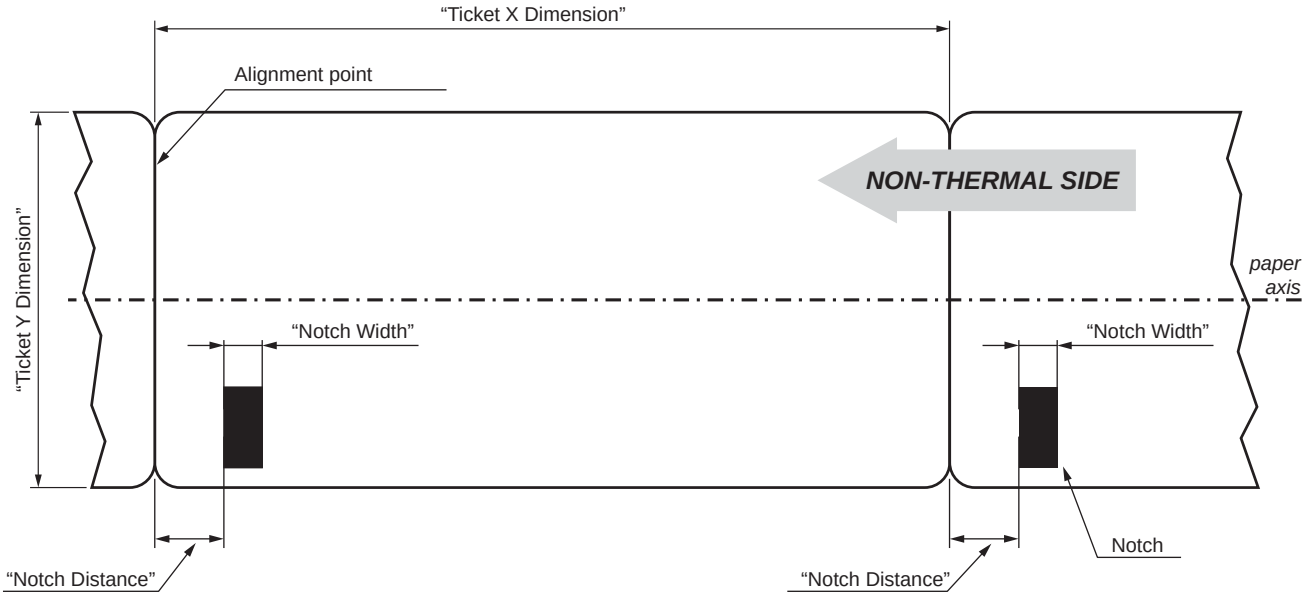
Notch Distance Sign	: +
Notch Distance [mm x 10]	: 1
Notch Distance [mm x 1]	: 5
Notch Distance [mm x .1]	: 0

The “Notch Distance” parameter, may be modified as follows:
- during the Setup procedure of the device (see cap.5)
- by modifying the Setup.ini file (see par.12.9)
- by driver (see par. 12.2)
- by using the $1D $E7 command (for more details, refer to the Commands Manual)

SVELTA EMULATION

The ticket features and the alignment parameters, may be modified as follows:
- by using the parameters of the <LHT> command (for more details, refer to the Commands Manual)
- by driver (see par. 12.2)
- by modifying the Setup.ini file (see par.12.5)

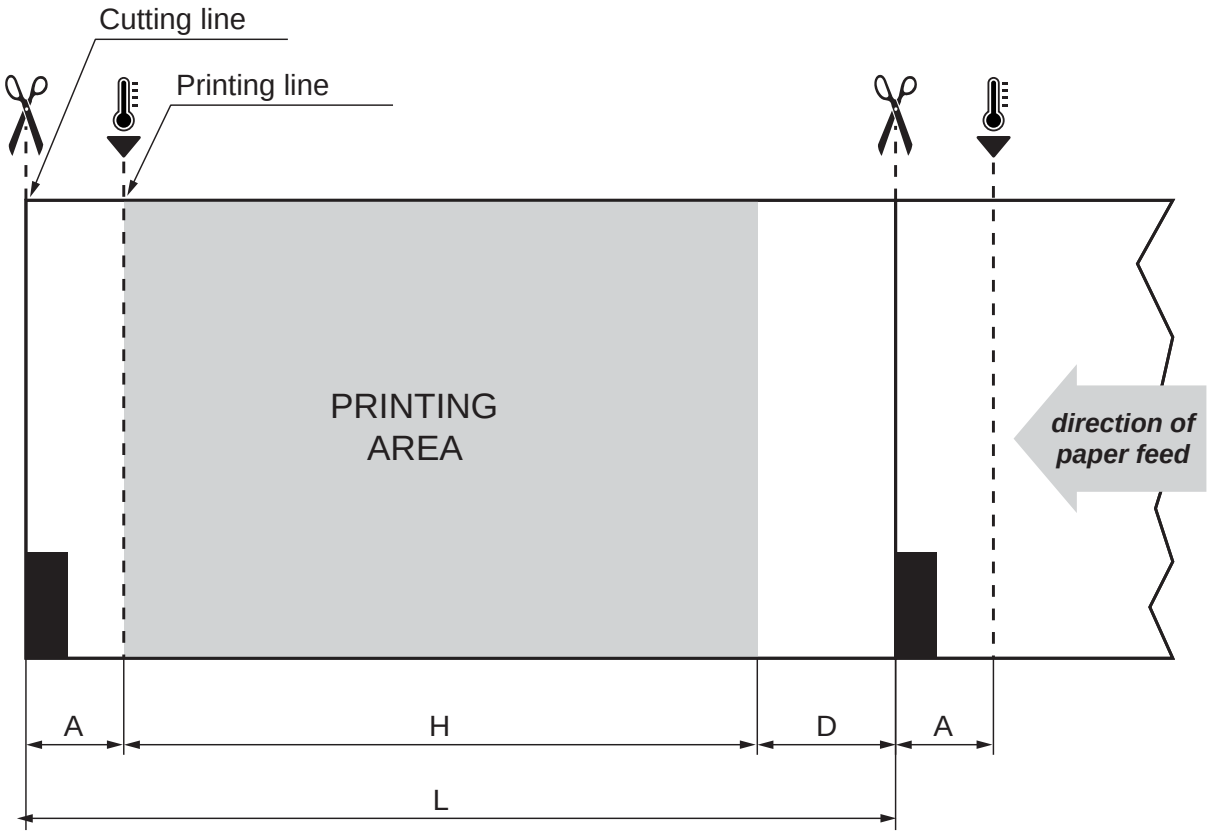
The following figure shows the some of parameters for alignment of the Setup.ini file:
- “Ticket X Dimension”
- “Ticket Y Dimension”
- “Notch Width”
- “Notch Distance”



10.4 Printing area

It is important to well calibrate the height of the printing area of ticket according to the inter-notch distance, in order to print ticket containing only one notch and to not overlay printing to a notch (that will make it useless for the next alignment).

The following figure shows an example of tickets with “Notch Distance” set to 0:



To use all the notches on the card, you must comply with the following equation:

$$L > H + A$$

where

L = INTER-NOTCH DISTANCE
A = NON-PRINTABLE AREA (0mm ≤ A ≤ 26,5mm)
H = HEIGHT OF THE PRINTING AREA

The height of the printing area (H) can be increased to make no progress on alignment (D = 0) but no further.

In ESC/POS™ emulation, after a performed cut, the paper is not completely recovered (in orde to avoid jamming when using of thin paper). This decreases the height of the non-printable area : A = 10mm.
So, in this emulation, it is important to consider the presence of this non-printable area when you define the layout of the ticket to print. Otherwise, you can use the command $1C $C1 to recover paper completely (see Commands Manual for more details).

The SVELTA emulation, instead, it is designed specifically for ticketing and then for using with heavy paper, which avoids the risk of paper jams. After performing a cut, the device completely recovers the paper and therefore the distance of recovery after cutting does not generate non-printable areas: A = 0.

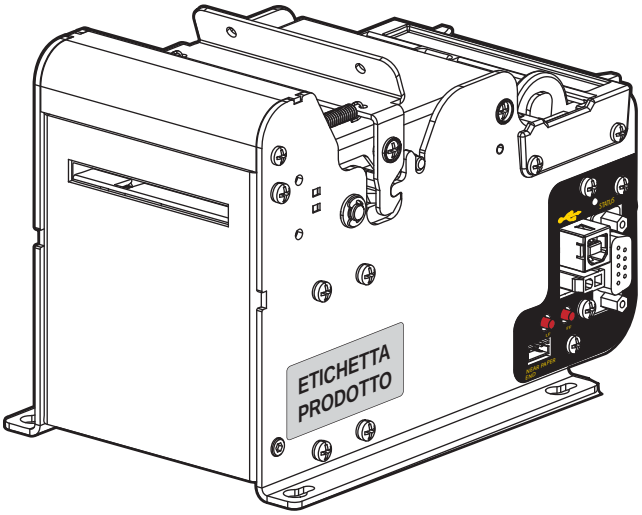
11 TECHNICAL SERVICE

In case of failure, contact the Technical Service by sending an e-mail to support@custom.it detailing:

1. Product code
2. Serial number
3. Hardware release
4. Firmware release

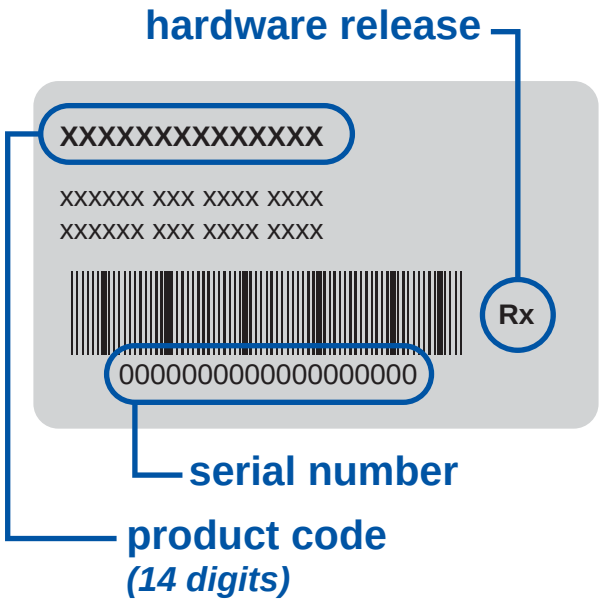
To get the necessary data, proceed as follows:

1



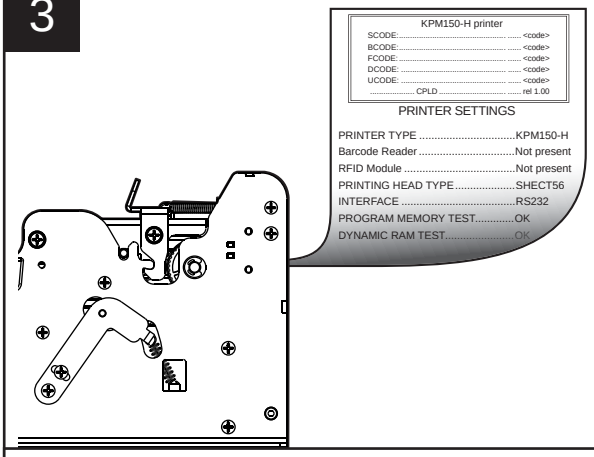
Find the product label located on the side of the printer.

2



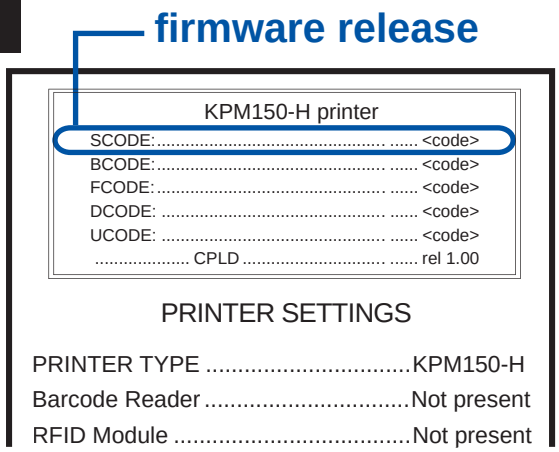
The label shows the product code, the serial number and the hardware release.

3



Print a Setup report (see paragraphs 5.2).

4



The Setup report shows the firmware release.

5

support@custom.it
Customer Service Department

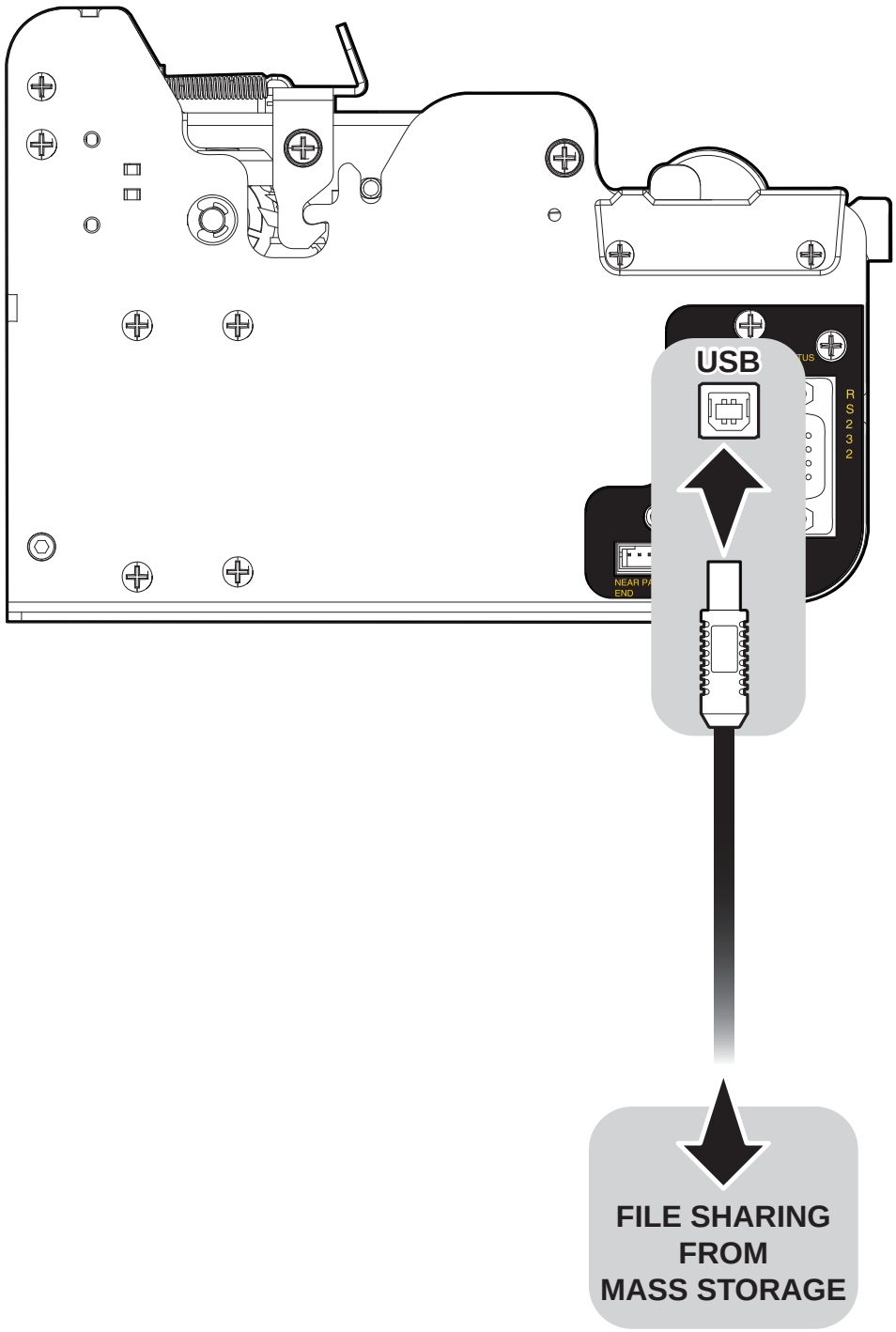
Send an e-mail to the Technical Service, with the data collected.

12 ADVANCED FUNCTIONS

12.1 File sharing

The printers can be connected to a PC through a type of connection with USB cable (see par. 3.3).

According to the connection made, it is possible to manage drivers, fonts and logos of the printer and configure the operating parameters by files sharing from Mass Storage, in case of USB connection.



12.2 Drivers installation

Mass Storage

It is possible to install the new driver update directly into the folder “DRIVER” on the Flash Drive of the printer.
You can enter the Flash Drive by files sharing from Mass Storage (see par. 12.1).
However, the relative parameter should be enabled during the configuration process (see chapter 5).

12.3 Logos management

It is possible to store new logos in addition to default logos stored on Flash Disk. The printer automatically provides to convert BMP image to the error-diffusion format in black and white.
Logos may be stored both on Flash Disk and on the Memory Card (only for models with SD/MMC card). The use of the Memory Card allows to handle more logos (however, the max number of manageable logos is limited by the RAM memory reserved for logos management).

Mass Storage

It is possible to add the new logo directly into the folder “PICTURES” on the Flash Drive of the printer.
You can enter the Flash Drive by files sharing from Mass Storage (see par. 12.1).
However, the relative parameter should be enabled during the configuration process (see chapter 5).

After adding the logo, open the configuration file “PictList.ini” and add a new line with a number associated to the logo (to be used with printer’s commands), a letter for the memory unit and the logo file name, as indicated in the instructions written inside the “PictList.ini” file.

To delete a logos stored in the printer, proceed as follows:
1. delete the selected logo from the “Pictures” folder on Flash Disk or SD/MMC card (only for models with SD/MMC card);
2. in the configuration file “PictList.ini”, delete the line related to the erased logo.

The logos stored into a unit memory or SD/MMC card (only for models with SD/MMC card) and converted by the printer, can be printed by using the number associated to the logo during the conversion step.
The correspondence between file-name and logo-number is warrant by the configuration file “PIctList.ini” and it is verifiable with the logo test.

ATTENTION:
The configuration file “PictList.ini” on the printer’s Flash Disk, has to be modified even if the new added logo is stored on SD/MMC (only for models with SD/MMC card).

12.4 Fonts management

It is possible to store new font in addition to default fonts stored on Flash Disk. Fonts may be stored both on Flash Disk and on the Memory Card (only for models with SD/MMC card).
The use of the Memory Card allows to handle more fonts (however, the max number of manageable fonts is limited by the RAM memory reserved for fonts management).

Mass Storage

It is possible to add the new font directly into the folder “FONTS” on the Flash Drive of the printer.
You can enter the Flash Drive by files sharing from Mass Storage (see par. 12.1).
However, the relative parameter should be enabled during the configuration process (see chapter 5).

NOTE:
Uploading the new font directly from the “Font” folder of Microsoft® Windows® directory, remember that the displayed font name into the “Font” folder may not match the real name of the font file.

12.5 Setup

Mass Storage

It is possible to configure the default parameters for printer and network setup by editing the “Setup.ini” file on the printer Flash Drive.
You can enter the Flash Drive by files sharing from Mass Storage (see par. 12.1).
However, the relative parameter should be enabled during the configuration process (see chapter 5).

After editing printer’s parameter, simply save the “Setup.ini” file to make the modifies activated.
The “Setup.ini” file is a configuration file that contains all the configurable parameters listed in text format and divided into some sections (indicated in square brackets).
The available values for every parameter, are listed after the parameter name. The value marked with the symbol ‘ * ’ is the default one.
To modify printer’s parameters, change the numeric value after the name of parameters. To set the parameter to the default value, change the numeric value with the symbol D.
The “Setup.ini” file permits the configuration of the following parameters:

[PRINT]

Printer Emulation:	0, 1*	0 = ESC/POS™ 1 = SVELTA		
Print Mode:	0*, 1	0 = Normal 1 = Reverse		
Autofeed:	0*, 1	0 = CR disabled 1 = CR enable		
Chars / inch:	0, 1*	0 = A=11 B=15 cpi 1 = A=15 B=20 cpi		
Speed / Quality:	0, 1, 2*	0 = High Quality 1 = Normal	2 = High Speed	
Paper Width:	0*, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16,17	0 = 54 mm 1 = 52 mm 2 = 50 mm 3 = 48 mm 4 = 46 mm 5 = 44 mm	6 = 42 mm 7 = 40 mm 8 = 38 mm 9 = 36 mm 10 = 34 mm 11 = 32 mm	12 = 30 mm 13 = 28 mm 14 = 26 mm 15 = 24 mm 16 = 22 mm 17 = 20 mm
Paper Threshold:	0, 1*, 2, 3, 4, 5, 6	0 = 30 % 1 = 40 % 2 = 50 %	3 = 60 % 4 = 70 % 5 = 80 %	6 = 90 %
Notch/B.Mark Position:	0*, 1, 2, 3	0 = Disabled 1 = Bottom	2 = Transparent 3 = Top	
Notch/B.Mark Threshold:	0, 1, 2*, 3, 4, 5, 6, 7	0 = 20 % 1 = 30 % 2 = 40 %	3 = 50 % 4 = 60 % 5 = 70 %	6 = 80 % 7 = 90 %
Notch Distance [mm]				
Notch/B.Mark Min. Width:	0*, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16,17, 18, 19, 20	0 = 0 mm 1 = 1 mm 2 = 2 mm 3 = 3 mm 4 = 4 mm 5 = 5 mm 6 = 6 mm	7 = 7 mm 8 = 8 mm 9 = 9 mm 10 = 10 mm 11 = 11 mm 12 = 12 mm 13 = 13 mm	14 = 14 mm 15 = 15 mm 16 = 16 mm 17 = 17 mm 18 = 18 mm 19 = 19 mm 20 = 20 mm
PaperEnd Buffer Clear:	0*, 1	0 = Disabled 1 = Enabled		

Ticket Locking:	0*, 1	0 = Disabled 1 = Enabled		
Ticket Management:	0*, 1	0 = Disabled 1 = Short Label		
AutoDetect Jam:	0*, 1	0 = Disabled 1 = Enabled		
Print Density:	0, 1, 2, 3, 4*, 5, 6, 7, 8	0 = - 50 % 1 = - 37 % 2 = - 25 %	3 = - 12 % 4 = 0 % 5 = + 12 %	6 = + 25 % 7 = + 37 % 8 = + 50 %

[INTERFACE]

RS232 Baud Rate:	1, 2, 3, 4, 5, 6, 7, 8*	1 = 1200 bps 2 = 2400 bps 3 = 4800 bps	4 = 9600 bps 5 = 19200 bps 6 = 38400 bps	7 = 57600 bps 8 = 115200 bps
RS232 Data Length:	0*, 1	0 = 8 bits/chr 1 = 7 bits/chr		
RS232 Parity:	0*, 1, 2	0 = None 1 = Even 2 = Odd		
RS232 Handshaking:	0*, 1	0 = Xon/Xoff 1 = Hardware		
Busy Condition:	0*, 1	0 = RxFull 1 = OffLine/RxFull		
USB Mass Storage:	0*, 1	0 = Disabled 1 = Enabled		
USB Virtual COM:	0*, 1	0 = Disabled 1 = Enabled		
USB Address Number:	0*, 1, 2, 3, 4, 5, 6, 7, 8, 9	0 = 0 1 = 1 2 = 2 3 = 3	4 = 4 5 = 5 6 = 6 7 = 7	8 = 8 9 = 9

[SVELTA]

Ticket X Dimension
Ticket Y Dimension
Notch Distance
Notch Width
Barcode Timeout
Ticket Offset X
Ticket Offset Y

Part Number : 7620000001000 Rev. 1.10

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